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PROCEEDINGS

OF THE

American Pharmaceutical Association

AT THE

SIXTEENTH ANNUAL MEETING,

HELD AT

PHILADELPHIA, PA.,

SEPTEMBER, 1868.

ALSO THE

CONSTITUTION AND ROLL OF MEMBERS.

PHILADELPHIA:
MERRIHEW & SON, PRINTERS,
243 Arch Street.
1869.

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1868–69.

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LIST OF QUERIES

PREPARED AND ACCEPTED BY MEMBERS DURING THE SESSION.

QUERY 1st.—An inquiry into the origin, culture, and trade in Rhubarb in China. *Accepted by Henry W. Lincoln, of Boston.*

QUERY 2d.—Does the milky juice of the common species of Asclepias possess narcotic or other medicinal properties? (Two years will be required to answer this query, as the season is now too far advanced to collect the juice in its perfection.)

Accepted by Prof. J. M. Maisch, of Phila.

QUERY 3.—What are the best forms for using Celandine (Chelidonium majus, Linn.) in medicine, including its recent juice, with formulæ?

Accepted by Prof. I. J. Graham, of Philadelphia.

QUERY 4th.—What are the best processes for ascertaining the strength of fluid extracts and tinctures containing no alkaloids?

Accepted by Prof. Graham, of Phila.

QUERY 5th.—What is the most eligible process for obtaining persulphate of iron in a dry powder, not objectionable for deliquescence?

Accepted by F. V. Heydenreich, of Brooklyn, N. Y.

QUERY 6th.—Are the extract and fluid extract of Conium of commerce as inert as some recent writers represent, and can these preparations, made by the process of the Pharmacopœia, be depended on?

Accepted by G. F. H. Markoe, of Boston.

QUERY 7th.—Are Sugar-coated Pills of commerce generally as soluble as those of like age kept under ordinary circumstances without coating?

Accepted by John Buck, of Chelsea, Mass.

QUERY 8th.—What kind of glass ware is, on the whole, best adapted to shop furniture—what shapes are most to be preferred for salt-mouthed and tincture bottles, and what kinds of dispensing and prescription bottles are best? With practical remarks on the glass manufacture in its bearings on pharmacy. *Accepted by T. S. Wiegand, of Phila.*

QUERY 9th.—Whence are the Corks of commerce derived, and where are they cut; with general observations on the commercial history of Corks and Cork Wood? *Accepted by P. W. Bedford, of New York.*

QUERY 10th.—What strengths of Alcoholic Menstrua are best adapted to the treatment of the officinal gum resins with reference to producing permanent preparations less incompatible with aqueous diluents than the present officinal tinctures?

Accepted by Alfred B. Taylor, of Phila.

QUERY 11th.—Which of the preparations of the late edition of the Prussian Pharmacopœia are preferable to like preparations in our own; and what new Drugs and preparations in that standard should be transferred to the U. S. Pharmacopœia, out of regard to the numerous German practitioners in the United States?

Accepted by F. Victor Heydenreich, of Brooklyn.

QUERY 12th.—Gelsemium sempervirens is found to be a valuable remedy in the treatment of nervous symptoms, consequent on the suspension of opium after its habitual use. What forms of preparation and what combinations with opium, if any, will be useful in practice?

Referred to Dr. J. Manlius Smith, of Manlius, N. Y.

QUERY 13th.—What are the sources of Asphaltum of commerce, now so largely used in roofing, and what uses is it capable of in Pharmacy?

Accepted by G. F. H. Markoe, of Boston, Mass.

QUERY 14th.—How does Pharmacy compare in its emoluments and social advantages with other professions and trades, and what general means, if any, can be adopted to render it more profitable and to regulate the number of its practitioners?

Accepted by Frederick Stearns, of Detroit, Mich.

QUERY 15th.—What are the sources of Bromine in the United States, and what is the extent of its production for the supply of commerce?

Accepted by Charles H. Dalrymple, of Morristown, N. J.

QUERY 16th.—What is the best substitute for Camphor for the protection of woolens from moths and other insects, that will be cheaper and equally effective? *Accepted by G. F. H. Markoe, of Boston, Mass.*

QUERY 17th.—In view of the scarcity and high price of Cardamoms, may not Asarum Canadense, Canella alba, Calamus and Ginger be used singly or combined in place of that aromatic in some officinal preparations at the next revision of the Pharmacopœia?

Accepted by Joseph L. Lemberger, of Lebanon, Pa.

QUERY 18th.—What are the sources of Vinegar made and sold in the United States, and what relation in quantity and quality does the true cider vinegar produced bear to that from other sources?

Accepted by P. R. Hoagland, of Boston.

QUERY 19th.—What is the actual practical power of the Microscope for detecting impurities in commercial powders of drugs?

Accepted by Joseph P. Remington, of Brooklyn, N. Y.

QUERY 20th.—Lycopodium clavatum is said to grow in this country. To what extent is this true, and may the lycopodium sporules be collected from it for the supply of commerce?

Accepted by Prof. J. M. Maisch, of Phila.

QUERY 21st.—What process can be recommended as easy of execution and affording accurate results for determining the percentage of crystallizable alkaloids in cinchona bark?

Accepted by Dr. Samuel P. Duffield, of Detroit.

QUERY 22d.—An Essay on Abies Canadensis and its products yielded to medicine and the arts. *Accepted by William Procter, Jr., of Phila.*

QUERY 23d.—On the present sources of supply and the statistics of the indigenous drug trade of the United States.

Referred to C. Lewis Diehl, of Louisville, Ky.

QUERY 24th.—Tapioca is largely substituted by a product made from other feculas. To what extent is this imitation practiced, and what are the natural sources of the fecula?

Accepted by Prof. J. Faris Moore, of Baltimore.

QUERY 25th.—Soluble Pyrophosphate of Iron in scales is observed to become less soluble by keeping. What is the cause of this change, and how may the salt be obtained of constant solubility?

Accepted by G. E. Jeannot of Louisville, Ky.

QUERY 26th.—What are the best practical tests for the purity of Bromide of Potassium? *Accepted by J. F. Llewellyn, of Louisville..*

QUERY 27th.—The fusing point of true butter of Cacao being near that of the temperature of the body, what is the influence of such additions as wax, tallow, &c., on its fusing point, and to what extent are such additions objectionable as irritants, if at all, in vaginal and urethral suppositories? *Accepted by Charles L. Eberle, of Phila.*

QUERY 28th.—The existence in the dry state of Bisulphite of Soda has been doubted, in contradiction to older observations. Can a dry bisulphite of soda be obtained by any one of the published or some other processes? If so, does the salt possess sufficient stability as a medicinal agent? *Accepted by Dr. S. P. Duffield, of Detroit.*

QUERY 29th.—Ammoniated Citrate of Bismuth dried in scales has become an article of commerce. What percentage of bismuth does it contain, as obtained from different sources, and by what process can the largest amount of oxide of bismuth be obtained in this form in soluble condition? *Accepted by J. F. Llewellyn, Louisville, Ky.*

QUERY 30th.—Can a pharmaceutical preparation be made from the recent or dried herb of Lactuca elongata, Muhl., which may be used as a substitute for Lactucarium and its preparations?

Accepted by Prof. John M. Maisch, of Phila.

QUERY 31.—What additions to Epsom Salt will diminish its bitter and nauseous taste without materially altering its properties? The answer to be accompanied by samples of solutions made by processes suggested.

Continued to Isaac W. Smith, of Philadelphia.

QUERY 32.—Are the principles in Buchu which are soluble in water and insoluble in alcohol, important medical constituents of the drug, and should they be retained in its pharmaceutical preparations?

Continued to Thomas A. Lancaster, of Philadelphia.

QUERY 33.—From what sources in this country can Metallic Bismuth be obtained, and to what amount are they rendered available?

Continued to Charles A. Tufts, of Dover, N. H.

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PREFATORY NOTICE.

After several very unexpected delays, the causes of which were entirely beyond the control of the Editor and the Chairman of the Executive Committee, we are at last enabled to lay the volume of the Proceedings for 1868 before the members, about two months later than had been expected. Notwithstanding the great care bestowed upon the proof reading, we are aware of several typographical errors, for the occurrence of which, unimportant though they may be, we would ask the indulgence of the Association.

The phonographic report has been printed almost entire, and will undoubtedly be read with great interest. The Committees reports are full of interest, and a number of papers are of more than ordinary importance. We believe that in these as well as in other respects this volume will compare favorably with any previous one.

It is gratifying to notice that the members have become more attentive to their duties towards the Association, comparatively few being dropped this year from the roll, among them quite a number with whom the Treasurer and Secretary are unable to correspond, owing to their neglect to inform these officers of their removal from their former place of residence. Several on that list had been kept on the roll for several years without having complied with the request of the Treasurer and Secretary to complete their membership. The names of the following gentlemen elected at the last meeting have, for the same reason, been left off the roll: James P. Frames, Balti-

more, Md., Joseph Karch, Dayton, O., Wesley Mullen and Bennett L. Smedley, Philadelphia.

To avoid similar occurrences in the future, it has been determined to send with this volume, to most of the members living in smaller towns, a blank application for membership; by referring to the Constitution, particularly to Article II, Sections 2, 3, 4 and 5, the requisites for perfecting membership and retaining a good standing may be readily ascertained. In all the cities where the distribution of the Proceedings is attended to by a member of the Association, the blank forms may be obtained from him, as well as by direct application to the undersigned, or to any member of the Executive Committee.

The prices of the Proceedings are as follows:

1851, '52, '53, '54, '55, '56,	unbound	25 cts.	each.
1857, ...	" 40	bound,	$ 70
1858, '59, ...	" 1.20	each, "	1.50 each.
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The Seventeenth Annual Meeting of the Association will be held in the City of Chicago, on the first Tuesday of September, 1869.

THOMAS S. WIEGAND,
Chairman of the Executive Committee,
No. 528 Arch Street, Philadelphia.

JOHN M. MAISCH,
Permanent Secretary,
1607 Ridge Avenue, Philadelphia.

MINUTES

OF THE

SIXTEENTH ANNUAL MEETING.

First Session.—Tuesday, Sept. 8th, 1868.

The Association met at the new Hall of the Philadelphia College of Pharmacy, in the city of Philadelphia, on Sept. 8th, 1868, at 3 o'clock, P. M. First Vice-President Robt. J. Brown, of Leavenworth, Kansas, in the Chair; John M. Maisch, Secretary. On taking the Chair, Mr. Brown stated that the President, Mr. John Milhau, was unable to attend the meeting, in consequence of impaired health.

He then appointed the following Committee to examine credentials: Frederick Stearns, of Detroit, Edward Parrish, of Philadelphia, and J. Faris Moore, of Baltimore.

The Committee, after a short recess, reported that they had attended to that duty, and that the following gentlemen had been duly accredited delegates to this meeting:

From the Massachusetts College of Pharmacy.—Ashel Boyden, John Buck, George F. H. Markoe, Charles A. Tufts, Henry W. Lincoln.

From the College of Pharmacy of the City of New York.—George C. Close, Ferd. F. Mayer, William Wright, Jr., Isaac Coddington, F. V. Heydenreich.

From the Maryland College of Pharmacy.—J. Faris Moore, E. Walton Russell, Charles Dohme, William Elliott and J. F. Hancock.

From the Philadelphia College of Pharmacy.—Prof. Robert Bridges, Dr. W. H. Pile, William B. Webb, Thomas S. Wiegand and Caleb H. Needles.

From the Chicago College of Pharmacy.—Robert J. Brown, Louis Strehl, Dr. F. Mahla, Henry W. Fuller, and Albert E. Ebert.

Alumni Association of the Philadelphia College of Pharmacy.—David Preston, Charles W. Riley, Howard England, Henry C. Blair, and H. T. Peck.

From the Montreal Chemists' Association.—Nathan Mercer and Dr. J. Baker Edwards.

No delegations had been accredited from the Pharmaceutical Associations and Colleges of Maine, District of Columbia, Cincinnati and St. Louis.

The Executive Committee presented the names of the following gentlemen for membership, all having complied with the requirements of the Constitution:

A. B. Clark, Jr., Galesburg, Ill.
F. Kern, Louisville, Ky.
Graham Wilder, Louisville, Ky.
Judson R. Cheney, Boston, Mass.
Pratt R. Hoagland, Boston, Mass.
Chauncy B. Littlefield, Boston.
James H. Richardson, Cambridgeport, Mass.
Ezra W. Arnold, Charlestown, Mass.
Newton C. Pettis, Great Barrington, Mass.
John T. Buck, Jackson, Miss.
Andreas Valdemar Bugge, St. Joseph, Missouri.
Alex. A. Green, Aurora, Nevada.
David L. Smith, Virginia, Nevada.
William Fletcher Muchmore, Madison, N. J.
William S. Voorhees, Morristown, N. J.
Theo. Tapken, Greenpoint, N. Y.
Charles H. Cressler, Chambersburg, Pa.
John W. Von Nieda, North Danville, Pa.
John S. Erben, Phila.
Charles W. Hancock, Phila.
Roger Keys, Phila.
Clemmons Parrish, Phila.
George G. Percival, Phila.
Allen Shryock, Phila.
William Taylor, Phila.
Frederick A. Tilge, Phila.
William E. Van Orsdel, Phila.
Hermann A. Vogelbach, Phila.
J. Thornton Weaver, Phila.
Charles A. Weidemann, Phila.
James B. Cherry, Pittsburgh, Pa.
Aurick S. Brackett, Knoxville, Tenn.

The Chair appointed Prof. Edward Parrish and Mr. Chas. A. Heinitsh tellers, who reported the unanimous election of the candidates.

The Secretary called the roll of members and delegates, when the following answered to their names:*

* This list contains all the members and delegates present during any of the sessions.

Dr. J. Baker Edwards, Montreal, Canada.
Nathan Mercer, Montreal, Canada.
Geo. J. Waugh, Stratford, "
Ferris Bringhurst, Wilmington, Del.
Chas. Shoemaker, " "
Louis C. Strehl, Chicago, Ill.
Geo. W. Sloan, Indianapolis, Ind.
Robert J. Brown, Leavenworth, Kansas.
Geo. E. Jeannot, Louisville, Ky.
Dr. Thos. E. Jenkins, " "
John H. Pope, New Orleans, La.
Chas. E. Dohme, Baltimore, Md.
Wm. Elliott, " "
John F. Hancock, " "
N. H. Jennings, " "
J. Faris Moore, " "
E. Walton Russell, " "
Ashel Boyden, Boston, Mass.
Michael H. Gleeson, " "
Pratt R. Hoagland, " "
Henry W. Lincoln, " "
Geo. F. H. Markoe, " "
Wm. Warren, Brighton, "
Joel S. Orne, Cambridgeport, Mass.
Jas. H. Richardson, " "
Benj. F. Stacey, Charlestown, "
John Buck, Chelsea, "
F. T. Whiting, Great Barrington, Mass.
Frederick Stearns, Detroit, Mich.
Robert Ormsby Sweeney, St. Paul, Minn.
Matthew F. Ash, Jackson, Miss.
Chas. A. Tufts, Dover, N. H.
Wm. J. Allinson, Burlington, N. J.
John A. Vandegrift, " "
Geo. H. White, Jersey City, "
Wm. F. Muchmore, Madison, "
Charles H. Dalrymple, Morristown, N. J.
William S. Voorhees, Morristown, N. J.
Peter V. Coppuck, Mt. Holly, N. J.
A. S. White, Mt. Holly, N. J.
Geo. C. Close, Brooklyn, N. Y.
F. Victor Heydenreich, Brooklyn, N. Y.
Cyrus Pyle, Brooklyn, N. Y.
Jos. P. Remington, Brooklyn, N. Y.
Dr. Edw. R. Squibb, " "
C. N. Stirling, " "
Henry C. Morse, Elmira, "
Jas. T. King, Middletown, "
S. J. Welling, New Rochelle, "
P. W. Bedford, New York, "
Isaac Coddington, " "
Max Frohwein, " "
Wm. A. Gellatly, " "
John W. Gilmore, " "
Augustus Goecke, " "
Frederick Hale, " "
Henry Haviland, " "
Frederick Hoffmann, " "
Chas. W. Kitchen, " "
Freeman D. Marckwald, New York, N. Y.
Ernest Molwitz, New York, N. Y.
Wm. Neergaard, " "
Wm. H. C. Onderdonk, New York, N. Y.
Chas. A. Osmun, New York, N. Y.
Daul. C. Robbins, " "
Wm. Wright, Jr., " "
C. F. Fish, Saratoga Springs, "
P. H. Barr, Alliance, O.
C. J. Geiger, Canton, "
Wm. H. Adderley, Cincinnati, O.
A. C. Hill, " "
E. T. Meyers, Bethlehem, Pa.
M. M. Selfridge, " "
Wm. S. Sieger, " "
J. A. Meyers, Columbia, "
Chas. A. Heinitsh, Lancaster, Pa.
Jos. L. Lemberger, Lebanon, "
Louis M. Emanuel, M.D., Linwood, Pa.
Geo. H. Ashton, Philadelphia, Pa.
Wm. C Bakes, " "

Edwin McC. Boring,	Philada.,	Pa.	Dillwyn Parrish,	Philadelphia,	Pa.
Henry Bower,	"	"	Edward Parrish,	"	"
Robert Bridges, M.D.,	"	"	Henry T. Peck,	"	"
Chas. Bullock,	"	"	Geo. G. Percival,	"	"
Saml. S. Bunting,	"	"	Dr. Wilson H. Pile,	"	"
Edward J. Dobbins,	"	"	Wm. Procter, Jr.,	"	"
Chas. L. Eberle,	"	"	Henry N. Rittenhouse,	"	"
Chas. H. Eggert,	"	"	Alonzo Robbins,	"	"
Geo. W. Eldridge,	"	"	E. M. Roche,	"	"
Chas. Ellis,	"	"	Wm. F. Roche,	"	"
Evan T Ellis,	"	"	Jas. T. Shinn,	"	"
John S. Erben,	"	"	Chas. Shivers,	"	"
Israel J. Grahame,	"	"	Ambrose Smith,	"	"
Chas. F. Gristock,	"	"	Isaac W. Smith,	"	"
Edw. H. Hance,	"	"	Alfred B. Taylor,	"	"
C. W. Hancock,	"	"	Wm. Taylor,	"	"
P. J. Hassard,	"	"	Herm. A. Vogelbach,	"	"
Wm. J. Jenks,	"	"	Wm. E. Van Orsdel,	"	"
Edw. C. Jones,	"	"	Wm. B. Webb,	"	"
Caleb R. Keeney,	"	"	Wm. H. Webb, M.D.,	"	"
Thos. A. Lancaster,	"	"	J. Thornton Weaver,	"	"
H. B. Lippincott,	"	"	Chas. A. Weidemann,	"	"
John M. Maisch,	"	"	Thos. S. Wiegand,	"	"
S. Mason McCollin,	"	"	Clayton N. Wills,	"	"
J. B. Moore,	"	"	John Heyl Raser, Reading,		"
Caleb H. Needles,	"	"	Robt. J. Taylor, Newport, R. I.		
Clemmons Parrish,	"	"	Edw. H. Heinitsh, Columbia, S. C.		

The following reports of Committees were presented, read by their titles, and laid upon the table for future action:

Report of the Executive Committee, accompanied by the report of the Permanent Secretary.

Report of the Committee on the Progress of Pharmacy.

" " " on the Drug Market.

" " " on Scientific Queries.

" " " on the Pharmacopœia.

" " " on the legislation regulating the Practice of Pharmacy.

Mr. Thos. S. Wiegand read the report of the Executive Committee, and John M. Maisch the supplementary report of the Permanent Secretary; both reports were, on motion, accepted and referred for publication.

REPORT OF THE EXECUTIVE COMMITTEE.

In accordance with the by-law of our Association, the Executive Committee respectfully report, that the fifteenth volume of the Proceedings of this Association was issued about the middle of December, thus enabling every member entitled to a copy to become thoroughly informed, quite soon, of the action taken by us in every matter that has come up for consideration; although this is still earlier than the volume of the year previous appeared, it is nevertheless later than both Editor and Publisher had hoped.

The delay was partly occasioned by the severe illness of Mr. Slade, the phonographer, whose reports have added so much to the interest and value of our publications. It is proper that this Committee should here make some acknowledgement of his skill and the fullness of his report, as well as the uniform courtesy which has characterized all his intercourse with us.

The Committee would ask the attention of the members to the great amount of labor devolving upon the Treasurer since the alterations made in our Constitution, much of which would have been prevented, had the members generally responded promptly to the circulars addressed them respecting these changes; this matter is here alluded to thus fully, as the failure entailed great delay in meeting the expenses of publication. The report of our Treasurer will fully explain the entire subject.

The total expense of printing and publishing proceedings, blanks, constitution, &c., amount to about Fifteen Hundred Dollars, which has all been paid by checks from the Treasurer.

As the growth of our Association among those who feel an interest in the true progress of pharmaceutical science is desirable, all who are thus anxious to advance our profession to its proper position are earnestly invited to connect themselves with us; every facility for so doing will be furnished by the Permanent Secretary or Chairman of the Executive Committee.

There is a sad duty of your Committee yet remaining, that of announcing the death of five of our members which has taken place during the year past.

Mr. R. W. Stevens, of Great Falls, N. H., was elected a member in 1859, and died in May, 1868. No further information regarding his demise has reached us.

Mr. Ray B. Easterbrook, of New York City, died April 27th, 1868, in the fiftieth year of his age, a native of Greenfield, Saratoga Co., N. Y. He commenced his business education with Messrs. Rushton & Aspinwall, and was connected with the firms that successively continued the business of that house.

Mr. R. C. Kennedy, of Cleveland, Ohio, was drowned in Lake Erie, August 7th, 1868, by the upsetting of a sail boat, in the twenty-fifth year

of his age. He graduated in the New York College of Pharmacy, whilst under the instruction of our fellow member Mr. Geo. C. Close, of Brooklyn, N. Y. He at once removed to Cleveland and entered the employ of Mr. C. O. Benton, to whom, as well as to his family, Mr. Kennedy soon rendered himself a great favorite. He gave promise of eminence in his business, being both studious and industrious, and although suddenly cut off, he gave satisfactory evidence that death only translated him to perfect happiness. His funeral was attended on the sixteenth of August by his Masonic brethren.

HENRY F. FISH, formerly one of the Vice-Presidents of this Association, became connected with it almost at its organization, forseeing the great advantages that would result to our trade by combined action and consultation. In whatever looked to the advancement of our business he took a deep interest. Of a sensitive temperament, he was peculiar for his scrupulous attention to all those amenities which distinguish the gentleman, while he was in no wise wanting in force or the earnest utterance of his opinions. In the ninth volume of our Proceedings three reports and one volunteer paper by him are published, giving evidence of his ability. For some years he had been suffering in health, which prevented his taking any active part in our proceedings; but a few years since, when prevented from meeting with us, he addressed a note to the presiding officer of our Association, enclosing a remittance, and expressing his regret at his inability to attend our session.

JAMES W. NADAND, of Cincinnati, died last spring. His fellow members from that city speak of his worth and attainments with great consideration.

Should any of our members be able to supply fuller information respecting those whose demise has been announced, or know of any other deaths which have occurred during the past year among our membership, if they will communicate such information to the Chairman of this Committee within a week, it will be embodied in this report.

The Chairman would feel he had neglected a duty did he fail to acknowledge the courtesy and promptness he has constantly met with in his intercourse with all the officers and members of the Association, with whom his official relations have brought him in contact, and for which he most sincerely thanks them.

On behalf of the Committee,

THOS. S. WIEGAND,
Chairman Ex. Com.

REPORT OF THE PERMANENT SECRETARY.

To the Chairman of the Executive Committee:

The Permanent Secretary has the pleasure to report that the Proceedings of the Association at the 15th Annual Meeting, notwithstanding

their increased size, were ready for delivery during the latter part of December, 1867. Before the close of the year they were shipped to the larger cities for distribution, and in the early part of January they were mailed to all the members entitled. As usual, they were withheld from those two years and over in arrears; the names of 71 members, who were sufficiently in arrears with their payments, were dropped from the roll in accordance with the Constitution; 19 of this number had never paid to the Association more than one years dues; several of them had never made any payment whatever; 22 of those dropped either neglected or refused to return their certificate. Several who were dropped during the last few years have paid up their arrearages, and their names will again appear upon the roll. It is plain that members who have been dropped from the roll, on rejoining accept by that very act all the changes which have been made in the mean time, the most important one of which, is the abolishment of life-membership. It is merely for the purpose of lessening the labor of our Treasurer, upon whom such correspondence would fall, that I would recommend the passage of the following resolution:

Resolved, That members who have been dropped from the roll, after settling their arrearages, can join again only by waiving their right to life membership, if they ever possessed that right previous to their delinquency.

Owing to the removal of our stock of Proceedings and other works from the building formerly occupied by the Philadelphia College of Pharmacy, the amount of the insurance was not raised. It is contemplated to increase it equal to the net value of stock on hand.

In collecting the journals and other works belonging to the Association, a great many volumes were found incomplete; some of the numbers missing cannot be purchased. The Secretary has corresponded with former Chairmen of the Committee on the Progress of Pharmacy, in whose possession they were supposed to be. All the books in their hands have been received, and still quite a number of the missing ones did not come forward. The Permanent Secretary knows of no other means than again to appeal to all members who may happen to have property of the Association in their possession, to send it without delay to him.

The foreign journals have arrived very irregularly; but few of them are received by mail; nearly all come through the Smithsonian Institution, free of charge, except expressage from Washington to this city. It is obvious that to some extent the Report of the Progress of Pharmacy depends upon prompt and regular reception of these journals. The Permanent Secretary, to remedy this evil, addressed a letter to the Hon. Post-Master General of the United States, the purport of which is explained in the following reply from the Superintendent of Foreign Mails:

POST OFFICE DEPARTMENT, OFFICE OF FOREIGN MAILS,
No. 15308. WASHINGTON, *August 26th*, 1868.

Sir:—In reply to your letter of the 13th instant requesting that all regular Journals from foreign countries intended for the American Pharmaceutical Association may be

allowed to pass through the Post Office without being prepaid—payment to be made by the Permanent Secretary, either on the reception of each number, or in advance for one year on the receipt of the first number, I have to inform you that this Department cannot comply with your request, insomuch as the provisions of our Postal Conventions with foreign countries require the pre-payment of postage upon printed matter.

I am, very respectfully, your obedient servant,

JOSEPH H. BLACKFAN, *Superintendent.*

J. M. MAISCH, Secretary Amer. Pharm. Association, 1607 Ridge Avenue, Phila., Pa.

The accurate numbers of Proceedings on hand cannot at the present time be reported, on account of the unfinished condition of the building of the Philadelphia College of Pharmacy, which rendered it necessary to have the entire stock boxed up and removed to a store house for safe keeping.

The number of resignations received last year up to the time of going to press was four; since that time the Permanent Secretary has received the resignation of Mr. H. S. Biddle, of Detroit, who is about retiring from the drug business; several other resignations will be reported by the Treasurer.

The incidental expenses of the Permanent Secretary have been as follows:

For Postage Stamps,	$99 73
" Packing Boxes,	13 15
" Packing Paper, Nails, &c.,	1 60
" Cartage and Freight,	66 60
" Porterage of Proceedings in Phila.	3 00
" Telegrams,	1 45
" Expenses in Collecting,	2 00
" Stationery,	1 00
" Printing of Circulars,	21 75
" Binding Manuscripts and Journals,	16 85
" Insurance,	17 50
" Seal,	10 50
	$255 13

J. M. MAISCH,
Permanent Secretary.

PROF. EDW. PARRISH.—We should not pass over, without some action, the death of one of the earliest and most active members of the Association. I refer to the death of our friend Henry Fish, of Waterbury, Conn. This is the first news I have had of his decease. He attended the first meeting of this Association, sixteen years ago in this city, as a sort of volunteer delegate from his town, having obtained credentials from his neighbors. He was very much interested in our Association, and was a man of fine tastes and gentlemanly demeanor, though with a condition of health very unfavorable to the enjoyment of life.

He was with us last in 1860, eight years ago. I hope the Secretary, or the Chairman of the Executive Committee will collect the facts in regard

to his life and death, and incorporate them in his report, as also any others of a like character that may come to his knowledge in time to be reported in the proceedings.

The appointment of the Committee to nominate officers for the ensuing year being in order, the delegations appointed the following members to serve on that Committee:

Massachusetts College of Pharmacy, Ashel Boyden.

College of Pharmacy of the City of New York, Geo. C. Close.

Philadelphia College of Pharmacy, Dr. Wilson H. Pile.

Maryland College of Pharmacy, Prof. J. Faris Moore.

Chicago College of Pharmacy, Louis Strehl.

Alumni Association of the Philadelphia College of Pharmacy, Henry T. Peck.

Montreal Chemists' Association, Nathan Mercer.

In addition to these, the Chair appointed the following members from those not represented by a delegation:

Dr. Thos. E. Jenkins, Louisville, Ky.,

Robert Ormsby Sweeney, St. Paul, Minn.,

James T. King, Middletown, N. Y.

The report of the Committee on the Progress of Pharmacy being called up, the Permanent Secretary read some extracts from the same. It was then accepted, and referred for publication.

Dr. E. R. Squibb, Chairman of the Permanent Committee on the Pharmacopœia, read the report of this Committee, which was on motion accepted, and referred to the Executive Committee for publication.

MR. PRESIDENT: Your Permanent Committee on the Pharmacopœia, consisting of W. Procter, Jr., A. B. Taylor, and the undersigned, appointed at the Annual Meeting of 1863, for purposes given in the minutes of the 11th Annual Meeting, (see proceedings of 1863, page 42), begs leave to report that the members have not been unmindful of the important duty with which they were intrusted, and have collected much information which may become useful at the next revision of the Pharmacopœia. As the time for the next revision approaches, a question arises in your Committee as to how to prepare and present what may have been done. All the members of this Committee are fully occupied, if not over-occupied, in the efforts which seem to become less and less productive in getting a living from their business, and have little time or labor to spare. This Association is a voluntary and an unincorporated

body, and therefore not entitled to representation in the Decennial Convention of 1870. Should your Committee therefore undertake to make a preliminary revision of the Pharmacopœia, and should this be presented at the next annual meeting and be accepted by the Association, it would have to be offered as a voluntary contribution at the convention, and might to a great extent merely duplicate the labor as performed by incorporated representative bodies. Such a report would doubtless be courteously received from this Association, and would obtain its due weight both in the convention and with its committee of final revision; but whether the good accomplished would be at all commensurate with the labor involved in such a report may well be doubted. Under these circumstances your Committee would suggest that a simple critical review of the Pharmacopœia in the light of past experience, by each member of the Committee independently, each making mere points of approval or objection, as his experience and information might indicate, might be all that would be warranted or required. And unless the Association otherwise orders or directs this will be the course pursued.

On behalf of the Committee,

BROOKLYN, Sept. 5, 1868. E. R. SQUIBB, Chairman.

DR. SQUIBB.—If any of the members, during the next ensuing year, should have any suggestions to make in regard to special or particular formulæ, the Committee will be very glad to receive them. Any criticisms or suggestions from any member will be gladly received. This has been noticed at every meeting, but it would be well to give additional notice now. Most of us have experience with certain classes of formulæ, and any suggestions in regard to them would be thankfully received by any member of the Pharmacopœia Committee.

MR. LINCOLN.—The reading of the papers called to mind the necessity of an act of incorporation of this institution. I hope some member of the Business Committee will bear this in mind, and bring forward some action in regard to it. Every year there appears to be a necessity for the incorporation of this Association, to enable it to perform some business which it cannot do without an act of incorporation.

The Permanent Secretary read a letter from Mr. Rose, Secretary of the Canadian Pharmaceutical Society, as follows:

TORONTO, CANADA, Sept. 3, 1868.

J. M. MAISCH, ESQ., *Sec'y. American Pharmaceutical Association:*

DEAR SIR,—I am instructed by the Canadian Pharmaceutical Society to express to you their thanks for your friendly communication, and their regrets that, owing to the shortness of the notice and the press of business, they are unable to send a representative to your annual conference. The Society would, however, be much pleased to receive a report of your proceedings, and hope that the meeting will be a success in every respect.

I am, dear sir, yours very truly, HENRY J. ROSE,

Secretary Canadian Pharmaceutical Society.

Mr. Frederick Stearns then rose and said :—

I am a frontiersman, living on the border of a foreign land. The sun rises for me in a foreign land; its first rays in the morning meet my eyes over the dominion of Canada, coming across the river on the banks of which I dwell. I deem it no more than proper, then, Mr. President, that I should express a personal satisfaction at the presence in our midst, this afternoon, of the first delegation accredited to us from one of the Canadian Societies. I have followed, for business or pleasure, the chain of lakes and rivers that separate the two dominions, several times, and, in the course of those followings, have visited repeatedly the members of our craft in the various Canadian cities; and it is a pleasure for me to say that invariably have I met with courtesy and attention, invariably have I met gentlemen, invariably have I met intelligence, professional knowledge, business pride, and a fair counterpart of their public spirit, as manifested in public buildings and extensive works of utility, in their mutual evidences of prosperity. I therefore gladly avail myself, Mr. President, of this opportunity to offer the following resolution, in which I am sure you will all concur:

Resolved, That the American Pharmaceutical Association welcomes heartily the presence, at this meeting, of the delegation from the Montreal Chemists' Association,—the first one credited to us from the Dominion of Canada.

The reading of the resolution was received with great applause.

Mr. Parrish.—I would like to second that resolution, notwithstanding it has been already seconded by the Association. I received, a day or two ago, an English paper,—a special number of the Norfolk News,—containing an account of the last meeting of the British Pharmaceutical Conference. It was held, I think, on the eighteenth of last month, and, of course, there has just been time for the accounts of it to reach us. The President of that Association this year was Daniel Hanbury, a man eminent for his knowledge in the various branches pertaining to pharmacy, and especially what is called "pharmacology," eminent for his probity, and distinguished for the high tone of his character, both professional and otherwise. In his address to the Conference, he begins, almost, with an account of the American Pharmaceutical Association, and of the proceedings of our last year, in a very commendatory and complimentary way. I like to get such messages across the ocean, and it gives additional force to the remarks which have just been made, that not only in Canada, where the subjects of Her British Majesty are our near neighbors, but across the water, we are held in friendly regard; and I am therefore very glad that a motion has been made that the Montreal Chemists' Association is welcome among the sisterhood of Societies which constitute this.

The resolution was then adopted unanimously.

DR. SQUIBB.—I would like to have an opportunity to introduce, personally, these gentlemen from the Montreal Chemists' Association, Messrs. Nathan Mercer, and J. Baker Edwards.

MR. MERCER.—A few minutes ago, I was the only delegate from the Montreal Chemists' Association; but in the last few minutes I have been joined by my friend and colleague Dr. Edwards, from Montreal. I can assure you that I have been very much taken by surprise by the kindly greeting you have accorded to us, and at the same time, I can also assure you, I most cordially reciprocate it. The pharmacists in Canada have always held the American Pharmaceutical Association in very high esteem. I have found its Proceedings in almost every portion of the Dominion which I have visited. There are several members of the Association scattered throughout the Dominion, and I believe some two or three members from Canada, in addition to ourselves, are present here to-day. Although we attend from a very young Association,—the Montreal Chemists' Association,—which has only been established one year, yet the spirit which has been shown by those members who compose the Association is of such an energetic character, that I hope, and I believe we have very good reason to hope, that in a very short time it will become an Association which will have considerable influence in the progress of pharmacy in Canada. I hope the time is not far distant when we shall have established a school of pharmacy, and shall be able to influence legislation, and obtain powers to enable us to ascertain the qualifications of all our future chemists and druggists in the Dominion. I again thank you for the kind reception you have given us, and I hope it will not be many years before we shall have the pleasure of seeing the Association in Canada.

MR. EDWARDS.—I am very happy in having an opportunity to endorse what Dr. Mercer has said in reference to our Montreal Chemists' Association. Although that is but a bantling of twelve months old, and we might almost appear in the capacity of godfathers, rather than in any other capacity, to that young institution, yet, in carrying out the same spirit in which we present ourselves here to-day, I have to refer to former meetings to which I have been delegated, although unable to attend. From the British Pharmaceutical Conference of last year I was delegated to attend, but was unable to do so; but I bear, as almost the very first impression of my English farewell, the very cordial good wishes of the British Pharmaceutical Conference to this Association; and but a very short period before, I was delegated from the Pharmaceutical Society of Great Britain; so in this connection I may say the Liverpool Chemists' Association, as having a similar object in view; and from all these Associations I am to-day the happy mouthpiece, to say to you that we sympathize with you in your long and arduous labors, and hope that the efforts which are now being made to advance the interests of pharmacy in various countries may tend to the fostering of intelligence and education among our young

men, and the spirit of brotherly love which should be in our midst, wherever we are.

The Permanent Secretary commenced to read the Annual Address of the President, Mr. John Milhau. Dr. Squibb concluded the reading of this document, which, on motion, was accepted, and referred for publication, the suggestions and propositions contained therein to be laid by the Business Committee before the Association for final action.

To the American Pharmaceutical Association:

Gentlemen,—In retiring from the high official position with which it has been your pleasure to honor me, I regret the necessity of recalling to your indulgent consideration the same personal reasons which caused me to hesitate in accepting that mark of your kind deference. I then stated that my health was feeble, and am now obliged to admit that it would be imprudent for me to venture from home. I the more regret my absence from your sixteenth annual meeting, as it occurs in Philadelphia, which has done more than any other city in the Union to extend pharmaceutical science, and render available its practical resources. Through its well-appointed College of Pharmacy it has successfully exercised its influence upon the moral, intellectual and business character of those intended for our profession, to fit them for their important and confidential relations to the patient, their intelligent co-operation with the physician, and their advancement of our science. My inability to exchange views with the various officers and committees must prevent my report of the operations of the year being as clear as I should desire.

It was resolved at the last meeting to increase the annual dues to three dollars (formerly two dollars), and to charge five dollars instead of three for certificates after the present meeting, the initiation fee of three dollars remaining unchanged. Life membership, that threatened us with a decrease in revenue without any decrease in the number of Proceedings to be printed, was abolished. Nearly all the life members, in accordance with the circular sent them according to your instructions, voluntarily relinquished their right of exemption from further payment of annual dues. It argues well for the future existence of this Association, that its members should so generally have resolved to tax themselves, and to cede their right to life membership that they had either acquired or had been looking forward to. As there has been a diminution in the number of non-contributing members, besides an increase of about five per cent. on the roll of active members, what with the increase of dues it may be permitted to suppose that we shall no longer be obliged to forestall our receipts, as of late years. There is, however, some dilatoriness in paying the dues, for which there can be but little excuse. For any more exact statement I have to refer you to the report of the treasurer, which cannot

be fully made up till the last moment. I would propose to modify a suggestion made by Mr. Colcord at the last meeting, to read that the payment in one sum of one hundred dollars would secure a life membership to any member not in arrears.

The Executive Committee have been busy, as usual, and more than usually successful in the early production of a very creditable volume of the annual Proceedings; creditable alike to them, the contributors, and the Association. The Committee mention the want of a system to furnish them with the names of deceased members, which it is their sad duty to report. I would suggest that the members of each State send the details of death occurring within their limits to one of their number, selected by them, to be communicated to the Executive Committee. This subdivision of States is one that it is proposed to make available in our attempts to obtain State legislation and appropriations for Colleges. I would suggest that a copy of our Proceedings be sent to the State library at the Capitol of each State, for the use of the Legislature.

In accordance with a resolution passed at our last meeting, a circular was addressed by our indefatigable Permanent Secretary to the Governors of every State. In the report of the Committee you will be informed of the result of this attempt to ascertain what encouragement this Association might rely upon to begin with in its plans to establish Colleges of Pharmacy throughout the country, and also if the Legislatures would be disposed to enact laws for the practice of our profession by the exaction of a diploma of competency, as exist in [nearly] all civilized communities in Europe. Emigrants from those countries would give the preference to such states and territories as should have adopted some such salutary measures for the protection of life as they were accustomed to at home. The subject is one of such deep interest, that I may be pardoned if I refer to it at length towards the close of this address, in unfolding a plan to procure laws, and establish schools of pharmacy in every State.

An act of incorporation by the general government being of vital importance, I would say, with regard to foreigners residing abroad that have made application for membership, that I am of opinion that they cannot be admitted without amending Article 1st, of the Constitution, which contemplates the admission of none but pharmaceutists, &c., "of the United States." Nor is it desirable to have foreign members, except honorary ones. They are entirely beyond our control, our interests can never become theirs, and it presents an obstacle to our obtaining an act of incorporation. Those on our rolls, if any, who shall not have been engaged in our profession in the United States, might be made honorary members, and their certificates altered accordingly. To remove another obstacle to incorporation, I propose that we appoint a Resident Assistant Secretary, in Washington City—to serve for four years, and to have his store or office designated by a sign as our headquarters. We must *appoint* to meet in that city every fourth year, (bestowing our favors im-

partially on each administration,) without invitation, and therefore would not be bound by the practice hitherto followed, of nominating a resident of the city where we may meet for the Presidency. As no city can expect to furnish (not nominate only) a president as frequently as every four years, the City of Washington might be restricted to but one president within twelve years. The Resident Assistant Secretary to act under the instructions of the Permanent Secretary, and to receive the correspondence and be the medium of communication between this Association and the Government, and the committees that we may send to Washington. He shall keep accurate lists of all the correspondence passing through his hands, and of the books or property of this Association that may be required for reference, &c.

The Committee on the Progress of Pharmacy have nearly if not quite concluded their important and interesting report, which becomes more valuable for each year that it is continued, and supplies the place of analogous publications in Europe. The proper relation and arrangement requires knowledge and judgment, and to secure uniformity the committee are of opinion that there should be a Permanent Reporter on the Progress of Pharmacy. I should propose that such officer, if created, be balloted for every year. The appointing power will thus remain vested in the Association. An objection to creating so-called permanent officers is, that there arises a tendency to continually re-elect the same, and thus leave the labor to a few willing and devoted members who are engaged in the same business as ourselves, and which exacts every moment of their time. Such a course to some extent perverts the objects of this Association, and militates against its growth and permanency, eventually narrowing its sphere of usefulness. We become accustomed to rely on others instead of exerting ourselves to do our share, and to instruct, and by our example encourage those that are to take our places, so as to perpetuate the Association for the high aims so distinctly laid down in Article 1st of its Constitution.

The Committee on Scientific Queries have prepared a list of queries, such as in their judgement will elicit answers of interest, and give members an opportunity of worthily contributing something to our common stock of knowledge.

I would suggest that, as usual, a committee be appointed to examine and report on the exhibition of specimens.

The Business Committee, among other unfinished business, will probably bring before you the communication received from the East River Medical Association. That association being a local one and their communication of concern only to some pharmaceutists in the eastern part of the City of New York, we, as a national association, should take no action thereon. It would be improper for us to pass resolutions committing ourselves to any policy not called for by the general interests of our profession throughout the United States. We are certainly not going to

interfere with the liberty of the patient, or undertake to reverse the established customs of Europe and of this country, to suit some discontented physicians. The welfare of the invalid should be our paramount consideration, and we can therefore safely leave the whole matter to the public.

The Committee on the Pharmacopœia report progress. Their report is to be presented at our next meting, previous to the decennial revision of the United States Pharmacopœia. This work requires to be so thoroughly elaborated that the members of that committee should have no other task assigned to them, as by the accomplishment of that one, they will have placed the pharmaceutical and medical professions under sufficient obligations.

To allow time for ample discussion, I now make the suggestion that you appoint a standing Committee on Unofficinal Formulas, to prepare a report for publication according to such regulations as you may direct, soon after the appearance of the new Pharmacopœia. The Medical and Pharmaceutical Associations of the District of Columbia have given a good precedent by publishing a "collection of non-officinal formulæ in local use," to serve as a guide in prescribing and to insure uniformity of preparation. This acts as a practical check to a certain species of covert quackery on the part of "manufacturing pharmaceutists," inadvertently countenanced by physicians. Such published formulas as the Committee may adopt ought to be credited to the proper sources, or it might be sufficient in some cases merely to state in what publications certain formulas are to be found, thereby giving the sanction of this Association. The meagre collection published in our Proceedings for 1857 was made without selection or classification, and contains but a portion of those needed now.

The Committee on the Drug Market, by statistics, show the oppressive character of the tariff as applied to our business. Over half the dutiable articles consist of drugs and medicinal preparations, &c., whose total money value hardly warrants their being enumerated thereon. These facts have repeatedly been brought before the Association. I would suggest the appointment of a standing committee on the tariff, to lay the matter before the Executive, and to memorialize both houses of Congress, and that the matter be agitated continually and perseveringly until we effect a thorough change. We will have the assistance of the wholesale trade and of the medical profession, backed by public opinion. The proposed committee must try to secure a more rigid enforcement of the law of 1848 to prevent the importation of bad and worthless drugs, being a fundamental principle of this organization, as enunciated in Section 1, Article 1st of our Constitution. I am more convinced than ever of the great utility of that law, and many facts to the support of that assertion will be brought to your notice. It is the only law that the Government has ever vouchsafed us. European nations may do without it, as they

rely on stringent internal police regulations not compatible with our institutions, and England being the market of the world, has the advantage of having the first pick. It is for us a necessary protection, and it would be highly proper that the members of our Association who reside in districts where there are drug examiners, should see that the duties of the office are properly discharged, and report thereon to the tariff committee. This committee should urge that the salary be increased sufficiently to command all the qualifications required for so responsible a position. The importation of powdered drugs, at least in wholesale quantities, should be prohibited. Worthless drugs rejected by the examiner are said to have been powdered on their return to Europe, reshipped to this country, consigned to a different party to avoid suspicion, and thus the law has been evaded.

There has been an important reduction in the excise duty, diminishing the price of alcohol, so indispensable a solvent in making our preparations. But as the new law can hardly be said to have gone into effect as yet, it is difficult to say whether an increased revenue will derive to the government by diminishing the temptations to fraud, or to what extent pecuniarily the consumer will be benefitted. There has been a reduction in the duty on cinchona and on chloride of lime, all of which is a great gain, whatever the interests intended to be served.

The report of the delegation to the International Pharmaceutical Congress in Paris was published in last year's Proceedings. It was the only delegation that voted for the free practice of pharmacy, with the guarantee of a diploma and personal responsibility. Such regulations were not sufficiently stringent to meet the views of our European brethren. They considered certain regulations necessary, to which our delegation could not reconcile their ideas. There is little in common to stand on, yet it would be proper that a delegation be appointed to attend the next Congress, wherever it shall be convened. There is a growing tendency in England to adopt reasonable laws, and in Germany there exists a desire for the partial abolition of their existing protective and police regulations.

In this connection it would be well to consider whether any available plan could be devised for a Universal Pharmacopœia, applying solely to the principal preparations in use. Each nation would require its own pharmacopœia the same as ever. The titles of preparations occurring in the Universal Pharmacopœia, in ordering or prescribing, to be accompanied by the letters U. P., which in Latin and the modern languages most used would stand for Universal Pharmacopœia, and could not be used with any other interpretation; thus avoiding confusion. A complete Universal Pharmacopœia is an utter impossibility, but a limited one in the present continual intercourse of nations would be of immense utility. Our wine of colchicum root, tincture of nux vomica, tincture of aconite root, are among preparations much stronger than the British. Imagine

then how much greater the discrepancies that must exist between our preparations and the French and German ones of the same names.

There is also the British Pharmaceutical Conference, which has held its fifth annual meeting; and the Pharmaceutical Society of Great Britain, that is entrusted with the enforcement of the laws relating to the practice of pharmacy; with which we should continue to cultivate intimate relations, as they challenge our sympathies by the great similarity of their organization and objects with our own; and the experiences and sympathies of co-workers must always be desirable. The success they have already met with should be the subject of congratulation.

Concerning decimal weights, the French system being established and in accord with our decimal currency, offers great advantages over other systems. Proposals to adopt it in our profession have been urged for years back, but being at present well established in some countries and finally legalized by our own amongst other governments, it bids fair to be the universal system, and it becomes us to take the lead in familiarizing the public with it. Singularly enough, articles imported from France are not allowed to be entered at the custom house without reducing every item of kilos in the invoice to avoirdupois weight, an unnecessary proceeding on those articles that pay *ad valorem* duty only. The Committee on the Tariff and the Drug Law might be instructed to ask that the government allow the system it has legalized to be used at the custom house; and more—that it require all proposals for contracts and all bills for supplies for the army and navy to be made out in the decimal weights.

I would suggest that you consider whether it be expedient to instruct the Committee on the Pharmacopœia, as it is to meet our wants for ten years, to try to have the decimal weights and measures used therein, (or, if you prefer it, the system of parts, as used in the Prussian Pharmacopœia,) besides troy weights as at present.

I had hoped to be able to lay before you some interesting reports from the Agricultural Bureau of the Patent Office, more particularly concerning the attempts to introduce cinchona and supplementary, to say the least, to what was published in our Proceedings for 1859. But my request for information has unfortunately remained unanswered. It is evidently to private enterprise we will have to look for any extensive production of plants yielding medicinal products. We ought not to have imported as long as we have been doing so many of the products of Europe, such as olive oil, liquorice, cork wood, the oils of bergamot and of lemon, citric and tartaric acids, even rhubarb, opium and the castor oil bean are now cultivated to some extent in Europe. Madder, so largely imported for dyeing, is cultivated in Maryland; in recent periodicals the introduction of Pyrethrum roseum (furnishing the Insect Powder), and the collecting of carrageen on our coast is mentioned; and there is a paper in the Proceedings for 1866, from Mr. Heinitsh, on the culture of

saffron in Pennsylvania. This is a beginning, and we must encourage every small beginning; the emigrant, if no one else, may be induced to set out some plants, as much for home memories as for profit. By spreading accurate information on these points as widely as possible through our Proceedings, the scientific and agricultural journals, through conversation with the farmer and the settler, we would be working to develop the resources of the country and to make it independent of foreign supplies. The volunteer papers from Mr. Wayne in the last Proceedings, one on the culture of opium in Tennessee, and the other on the production of Cream Tartar, Tartaric Acid, &c., resulting from American Wine manufacture, are full of import. For another reason I welcome the abundant production of light table wines, as I see in it the greatest safeguard against indulgence in strong liquors. Every individual who gives information on the growing of some useful foreign plant will contribute to fostering the industrial advancement of this country.

Before closing, I would address you according to my convictions on the true plan, to use the words of our Constitution, "of improving the science and art of pharmacy, of regulating the system of apprenticeship, and of suppressing empiricism" with any degree of success,—and that is by professional instruction. It will require the whole influence of every member to further the plan proposed, or a better one. It will take a long time, and require hard work. We must commence by organizing our forces. It would be necessary to appoint "a central committee on laws and colleges," and all the members in each State should band themselves together and constitute "sub-committees" for their respective States. The general committee should publish a full collection of all the existing State laws bearing on the subject, together with comments, followed by an account of kindred laws in Great Britain, especially those lately enacted. They will issue instructions as far as necessary, and drafts of the proposed laws for the use of the sub-committees. Every member should, by explanation and by all proper arguments, endeavor to enlist the influence of every prominent citizen he can reach,—the State representatives, the ministers, the lawyers, the physicians, his customers, and the editors,—so as to bring the legislature and executive of each State over to our views, and never cease till we have obtained the requisite laws, and founded a College of Pharmacy in each State. It was by such means that we succeeded in obtaining the drug law of 1848, when the country was much less prepared for such a step than now.

Each sub-committee shall appoint its chairman, and each member shall work persistently to the proposed end under his direction, thus ensuring combined and intelligent action. The Chairman will maintain communication with the Central Committee, from whom they shall receive full ininstructions, all needed information, the documents for diffusing knowledge of the aims in view, &c.,&c.; then will result a simultaneity of action that will arrest the attention and challenge the respect of the

the community. My word for it, with diligence, by combined action, you will succeed in obtaining laws and founding colleges that will be to you a source of worthy pride. The New York College of Pharmacy, now about to give its thirty-eighth annual course of lectures, has been founded and maintained solely by private efforts. It obtained a law from the legislature in 1839 which applied only to the City of New York, and which I am happy to inform you we have every reason to believe will be so amended as to apply to the whole State. The college was founded without the support of any legislative action, and never has received a single appropriation from either State or City government. It acquired the influence to obtain the law just mentioned, and was the instrument to obtain the drug law of 1848, and later was the means, by its action in 1851, of bringing about the Convention of 1852, that is considered as the first meeting of this Association. You have an easier task before you; the wants of a civilized community are better understood; and newer States will no doubt be more liberal. The law above-mentioned forbade any person from *commencing* business as an apothecary in New York City after 1839, unless furnished with a diploma from the New York College of Pharmacy, or else from some regularly constituted college of pharmacy or medicine, of which fact they must procure a certificate to be furnished by the College free of charge. The penalty was $50, payable to the New York Dispensary on conviction. This institution having neglected to prosecute for fear of becoming unpopular, the law remained inoperative; else the community would now be in the enjoyment of its benefits. The law interfered in no wise with those already established. A weak point in the law was that it had to be proven that physician's prescriptions had been dispensed; the fact of opening a store for the purpose of carrying on the business of an apothecary or retail druggist, should have been considered sufficient; and the penalty for a second offence should be heavier. The law requiring a diploma or a certificate from the New York College, as a *sine qua non*, should have required that it be exhibited in a conspicuous place in the store, the better to insure compliance with its provisions; and the omission on the part of the apothecary to send his apprentices (properly called 'élèves' or pupils, in France) to the Professors of Pharmacy and its collateral branches, should have been punished with a fine. Many papers on these subjects that have appeared in our Proceedings, might be consulted with advantage.

It is contemplated, in the scheme I have suggested, that the central committee on laws and colleges, through the State sub-committees, be the means of obtaining the signatures to the petitions that the committee on the tariff or other committees might require in memorializing Congress; and if our seven hundred members will only reach the Congressmen individually who represent their respective districts, we will surely obtain compliance with any just and reasonable demands. But no such

scheme can be carried to a successful issue without great labor, self denial and endurance. We must create a uniform demand in every State for salutary laws that will protect alike the public and the pharmaceutist, and not rest till we obtain them. As each State yields in turn to these requests, the number of colleges will rapidly multiply, and the courses of study in the older ones will have to be extended if they will retain their prestige. Thus our profession will attain the status it is entitled to by the useful and responsible position it will be better able to fill. Some plan of operations being absolutely necessary, I hope it will not be considered amiss that I should have trespassed on your time by offering these suggestions for your discussion, and it may be unnecessary to add that this association may count on my best wishes for its success in whatever course it may determine to pursue.

J. MILHAU.

New York, Sept. 7th, 1868.

Invitations were received from the Medical Faculty of the University of Pennsylvania, to visit that Institution, and especially the Wistar and Horner Museum, and the private collection of Prof. Carson ;

From the Officers of the College of Physicians ;

" " Trustees of the Pennsylvania Academy of Fine Arts ;

" " Managers of the Pennsylvania Asylum for the Blind ;

" " Librarian of the American Philosophical Association ;

" " Officers of the Academy of Natural Sciences.

Mr. Alfred B. Taylor, on behalf of the local Committee of Arrangements, invited all the members, together with their ladies, to be present this evening, at 8 o'clock, at the Hall of the College in which the exhibition of pharmaceutical objects is held.

It was then moved by Dr. Squibb to adjourn till to-morrow morning at 9 o'clock. Prof. Parrish moved to amend by fixing the hour of meeting at 10 o'clock.

The question being taken on the amendment, and a division called for, 36 votes were cast in the affirmative and 21 in the negative ; so the amendment was adopted. The resolution as amended was carried, and the Association adjourned to Wednesday morning, Sept. 9th, at 10 o'clock.

Second Session.— Wednesday Sept. 9th.

Vice-President Robt. J. Brown called the Association to order at 10 o'clock, A. M. The Permanent Secretary read the minutes of the first session, which were approved.

Mr. Thos. S. Wiegand offered the following resolution, which was seconded and unanimously adopted:

Resolved, That the Faculty of the Jefferson Medical College, of the Medical School of the University of Pennsylvania and the Medical Profession in general, be invited to be present at our sittings.

The Treasurer, Mr. Chas. A. Tufts, read the annual report of this office, as follows:

To the Officers and Members of the American Pharmaceutical Association.

In conformity with my duty, I herewith present the report of this office for the past year. I have paid all the bills presented to me up to this date, and there is a balance now in the Treasury of $249.80. This balance is smaller than it has been heretofore, owing to our increased expenditures during the past year, and also from the fact that the bills could not be sent from me as early as I wished so to do.

Our proceedings cost in 1865, $939.81, in 1866, $1038.15, and in 1867, $1508.32, a large advance, caused by the increased size of the volume, and the better manner in which it was published.

As soon as the correct list of all the members of the Association was published, by correspondence I obtained the street and number of each member residing in the large cities, and at once forwarded the life-member circulars to all who were not in arrears. I sent bills to all who were in arrears, and as soon as the account was settled by the member, I sent the life-member circulars; this course I have followed during the whole year.

We have on our published list the names of 727 members; of this number 419 have resigned their life-membership, and 86 have declined to do so; 14 of the latter have signified to the Treasurer their wish that he would forward their bills yearly, until otherwise ordered. Several members also, who have not relinquished their life-membership, have relinquished their claim upon the published proceedings.

I have been obliged to send the circulars twice to 128 members, and there are still 43 to whom I have sent the circulars twice who have not responded. This has caused me much additional labor, and of course has entailed additional expense upon the Association. My bill for postage, $126.78, will be the most correct criterion to judge of the labors of this office for the past year.

You will notice that there are 222 members from whom no answers are yet received; it is hoped that an answer pro or con may be soon obtained

from each member of the Association. A large number of circulars have been returned through the Post Office, with the notice "not to be found." If each member, when he changes his residence or his business street and number in our large cities, where mail matter is delivered by mail carriers, would notify the Treasurer, he would facilitate the labors and usefulness of that officer.

In our published list you will observe many members' names are represented by initials, and it is so also on the Treasurer's books. This is not only illegal, but it has an unfinished appearance on the books, and should be corrected. I should be gratified if any member on perceiving such error in his own name, or in any name that he may be able to correct, would at once notify me, that I may make the proper correction. Individuals making applications for membership should give their full names.

The financial reforms arranged at the last meeting in New York, do not fully go into effect until this meeting. I trust, if these reforms are fully carried out by the Association, and we continue the same economy we have heretofore practised, we shall have funds sufficient to successfully fulfil the design of the Association.

The list of members from whom I have received assistance is too long for individual mention. I sincerely tender to each and all my thanks for their courtesy and kindness.

CHARLES A. TUFTS, *Treasurer.*

Statement of Receipts and Disbursements of the American Pharmaceutical Association for the year ending September 8th, 1868.

RECEIPTS.

1867.		
Sept. 7.	To balance on hand, as per last Report, . . .	$423 39
1868.		
Sept. 8.	" amount received for Contributions, . . .	1877 00
	" " " from sale of Certificates, . .	373 00
	" " " " " " Proceedings, .	39 77
		$2713 16

DISBURSEMENTS.

1867.		
Sept. 13.	No. 1. American Bank Note Co., Certificates, .	$ 30 00
" "	" 2. Thomas S. Wiegand, Expenses, . . .	2 05
" "	" 3. C. Lewis Diehl, Expenses, ...	1 25
" "	" 4. E. L. Dodge, Expenses, ...	4 50
Oct. 9.	" 5. John M. Maisch, Expenses, . . .	50 40
" "	" 6. Chas. A. Tufts, Expenses.	42 50
" 30.	" 7. James H. Slade, Phonographic Report, .	150 00
Nov. 15.	" 8. Thomas S. Wiegand, Chairman Exec. Com.,	500 00

1868.

Jan. 8.	No. 9. John M. Maisch, Expenses, . . .	100 00
" 25.	" 10. Thomas S. Wiegand, Chairman Exec. Com.,	200 00
Feb. 24.	" 11. " " " "	100 00
Mar. 25.	" 12. " " " "	100 00
April 1.	" 13. Charles A Tufts, Expenses, ...	100 00
May 9.	" 14. John M. Maisch, Expenses, ...	154 34
" 18.	" 15. Thomas S. Wiegand, Chairman Exec. Com.	65 00
July 6.	" 16. " " " "	50 00
" 27.	" 17. John M. Maisch, Expenses, ...	24 59
Aug. 5.	" 18. Thomas S. Wiegand, Chairman Exec. Com.,	300 00
" "	" 19. William Procter, Jr., Expenses for Proceedings of Paris Congress, ...	34 00
" 22.	" 20. Thomas S. Wiegand, Chairman Exec. Com.,	175 00
" 25.	" 21. " " " " .	18 32
" 31.	" 22. John M. Maisch, Expenses, Miscellaneous,	52 20
" 31.	" 23. Executive Committee, " "	19 91
Sept. 3.	" 24. Henry W. Lincoln, Certificates, . . .	39 77
" 7.	" 25. Chas. A. Tufts, Miscellaneous, . . .	22 75
" 7.	" 26. " " Postage, ...	126 78
		2463 36
Sept. 8.	By balance cash on hand to date,	249 80
		$2713 16

E. E. All of which is respectfully submitted.

CHAS. A. TUFTS, *Treasurer.*

On motion of the Business Committee, the report was accepted and referred to an Auditing Committee, appointed by the Chair, and consisting of J. Faris Moore, of Baltimore, Chas. H. Dalrymple, of Morristown, N. J., and John Buck, of Chelsea, Mass.

Dr. W. H. Pile, on behalf of the Nominating Committee, presented the following nomination of officers for the ensuing year:

For President,

EDWARD PARRISH, ... Philadelphia, Pa.

For Vice-Presidents,

FERRIS BRINGHURST, ... Wilmington, Del.
EDWARD S. WAYNE, ... Cincinnati, Ohio.
ALBERT E. EBERT, ... Chicago, Illinois.

For Treasurer,

CHARLES A. TUFTS, ... Dover, N. H.

Permanent Secretary,

JOHN M. MAISCH, ... Philadelphia, Pa.

Executive Committee,

THOMAS S. WIEGAND, Chairman, Philadelphia, Pa.
P. W. BEDFORD, ... New York, N. Y.
CHARLES A. HEINITSH, . . . Lancaster, Pa.
THOMAS E. JENKINS, ... Louisville, Ky.
Prof. JOHN M. MAISCH, *Ex-officio*, . Philadelphia, Pa.

Committee on the Progress of Pharmacy.

WILLIAM PROCTER, JR., Chairman, . Philadelphia, Pa.
F. MAHLA, Ph. D., ... Chicago, Ill.
LEWIS DOHME, ... Baltimore, Md.
G. F. H. MARKOE, ... Boston, Mass.

Local Secretary, *ex officio.*

Committee on the Drug Market,

W. A. GELLATLY, Chairman, . . New York, N. Y.
CHARLES BULLOCK, ... Philadelphia, Pa.
HENRY W. FULLER, ... Chicago, Ill.
JOHN P. MUTH, ... Baltimore, Md.
ISAAC T. CAMPBELL, ... Boston, Mass.

Committee on Scientific Queries,

WILLIAM PROCTER, JR., Chairman, . Philadelphia, Pa.
GEORGE C. CLOSE, ... Brooklyn, N. Y.
ISRAEL J. GRAHAM, ... Philadelphia, Pa.

Business Committee.

DR. E. R. SQUIBB, Chairman, . . Brooklyn, N. Y.
JOHN F. HANCOCK, ... Baltimore Md.
E. H. SARGENT, ... Chicago, Ill.

PROF. PROCTER.—I would like to say that the duties of the chairmanship of the Committee on the Progress of Pharmacy are a great deal more onerous than I could agree to carry out. I would like to do this year all that I can, but I don't think I can occupy the position and do what would be expected of me.

DR. SQUIBB.—I would suggest that the Association have a right to ask the Committee to reconsider its report. I also desire to be withdrawn from the Business Committee. In addition to the argument made by the

President in his retiring address, I have another to offer. We remember what he said in regard to continuing the same officers in the same positions, or the duties and labors of the Association on a few members, rather than distributing them on the many. There is another reason which I wish to add, namely, I have been chairman of the Business Committee for many years since its organization, and we are apt to think we are carrying the Association in our pockets, if we go along from year to year, the same men in the same places all the time; through the permanency of these offices we are apt to get into a rut. I think they should be distributed more widely. I am not unwilling to serve the Association, but I should prefer to serve it in some other position than as chairman of the Business Committee. Both Mr. Procter and myself have a right to ask the Nominating Committee to reconsider their report, and put some other members on the committees. There is no great difficulty in either. Mr. Procter has suggested to me that it is a very imperfect report on the Progress of Pharmacy that can be made by any one not acquainted with German, and that the chairman of that Committee should understand German. In regard to the Business Committee, there are plenty of members who can serve on that Committee as well as any other man; so with the offices generally. I very much deprecate thus bringing forward, year after year, the same names for the same places.

Prof. Moore.—The reason of the Nominating Committee in placing Mr. Procter on that Committee was, we understood the previous chairman did not wish to have it continued to him. We have no desire to continue the labor on any one man. We thought Prof. Procter had facilities which perhaps no other man in the Association had, being acquainted with French and having the facilities of the German journals. We have on that Committee one gentleman who will give him a great deal of assistance, and who is acquainted with the German language; I refer to Mr. Dohme, of Baltimore. I am perfectly aware that the chairman of that Committee should understand German, or else have the assistance of some one who does understand it. With regard to the chairman of the Business Committee, I think where we have got a good man, we ought to try and keep him as long as we can.

Dr. Squibb.—It might be desirable to have in view the advice of our late President—to have a permanent reporter on the Progress of Pharmacy. His reasons for it seem to be very good ones, and if we could get one of these gentlemen, well posted in foreign languages, to take upon himself this duty, that is an exception to what I have said, and an instance of permanency which I think it would be well to make. That might be had in view in changing this report.

Prof. Moore.—If the last chairman of this Committee would accept of this position permanently, we should be very glad to have him there.

Mr. Maisch.—I corresponded with Mr. Diehl some three or four

months ago, and he was then very willing to accept the chairmanship for a few years to come. Subsequently, however, he wrote me, and only last Saturday I received a letter from him in which he states that his business engagements are of such a nature that he cannot give the attention to it that the subject requires. You will remember that for the last four or five years the same suggestion has been made, over and over again, to have, if possible, a permanent reporter for that subject—that is, a permanent chairman of that Committee. I believe it would be difficult to find one who can serve for a lengthened period. I would, however, make a motion, that so much of the report of the Nominating Committee as refers to the Business Committee and the Committee on the Progress of Pharmacy, be referred back to that Committee for reconsideration, to be reported upon hereafter. I think they can find several of the members who are sufficiently and very well acquainted with foreign languages who would probably be willing to accept of the position.

Mr. Stearns.—I oppose this making a permanent committee on the Progress of Pharmacy. The arguments that have been employed in organizing so that we have a permanent Treasurer and Secretary, don't apply to this Committee. Our society is to some extent a mutual educating society, and besides that, it is a means of self-education. The chairman of this Committee appointed from among the members at large every year, takes upon himself a duty that is new, to be sure; but if he has any pride in getting up this report, he places himself in contact with all the means of information. The report is a compilation of the progress made in the preceding year. It is not original matter. It is a compilation. It wants to be arranged systematically, and that is the most difficult matter of the report. It is to be presumed that at least most of the matters are translated, but the presence on that committee of a chairman, or as next man of one who understands foreign languages, answers the purpose, it seems to me, fully. I certainly shall not support the idea of making this thing a permanency, because I think it is of advantage to the society to have it changed every year. I would suggest to the Nominating Committee the feasibility of placing the names *vice versa*, giving Prof. Procter the chairmanship of the Business Committee, and Dr. Squibb that of the Progress of Pharmacy, if they will accept that.

Dr. Squibb.—There is another objection to that which Mr. Stearns has doubtless overlooked. It is that Prof. Procter, myself and Mr. Taylor have, for the forthcoming year, as much as ought to be expected of us in our critical review of the Pharmacopœia. If members don't know how much labor is involved in that, I would like to have them try it. It is a large book to go over, and experience is required as well as criticism, and I think that the permanent Committee on the Pharmacopœia have as much to do as is advisable for them to undertake, if they are expected to do it well.

MR. MAISCH.—So far as the remarks of Mr. Stearns are concerned, relating to the permanence of the chairmanship of the Committee on the Progress of Pharmacy, I believe it is the experience of every chairman of that Committee that by the time he retires from that position, he has just found out the way to make it less laborious than it was at first, and for that reason, if the chairmanship is continued for a few years at least, the subsequent reports always involve less labor than the first ones. It is the arrangement of the matter, and the advantage of knowing what has been reported, without referring to previous reports, which reduces the labor.

The motion of the Permanent Secretary, to refer the nominations for the Committee on the Progress of Pharmacy and for the Business Committee back to the Nominating Committee, was then put and carried.

After consultation the Nominating Committee made the following amended report: In place of Prof. Wm. Procter, Dr. Frederick Hoffmann, of New York, and in place of Dr. E. R. Squibb, Alfred B. Taylor, of Philadelphia. The report as amended is as follows:

Committee on the Progress of Pharmacy,

FREDERICK HOFFMANN, Ph.D., Chairm'n, New York, N. Y.
FRED. MAHLA, Ph. D., . . . Chicago, Ill.
LEWIS DOHME, ... Baltimore, Md.
G. F. H. MARKOE, ... Boston, Mass.

Local Secretary, *ex officio.*

Business Committee,

ALFRED B. TAYLOR, ... Philadelphia, Pa.
JOHN F. HANCOCK, ... Baltimore, Md.
E. H. SARGENT, ... Chicago, Ill.

The Business Committee moved that the report of the Nominating Committee, as thus amended, be accepted, and that a ballot be taken for all the officers nominated.

The motion being adopted, the Chair appointed Messrs. F. V. Heydenreich, of Brooklyn, and C. J. Geiger, of Canton, Ohio, tellers, who reported the unanimous election of the candidates.

The Chair appointed Fred. Stearns, of Detroit, and Henry W. Lincoln, of Boston, a committee to conduct the President elect to the Chair. The Committee introduced to the meeting the President elect, who then spoke as follows:

Gentlemen: There are some things that it is always proper to say on these occasions, and that are always said. I ask you to take them for granted. Of course, I appreciate the honor you have done me in choosing me to this position; of course I shall do my best to fulfil its duties, but I feel in regard to it as though these kind of words don't exactly meet the case—that they don't exactly meet my case. I feel that, underlying all the objects of our Association, there is an undercurrent of friendship, of good will, of fraternity, that, I confess, to me, gives it its greatest charm. You can get at scientific knowledge out of books and by experiment, but to get at men's hearts and affections, as we have to each other's the past sixteen years (those of us who have been together in this Association that long), is another matter,—a more difficult thing, the way the world goes. We have, I think, learned to love each other in this Association. Going back to the first of its meetings, its early meetings, when we were small in numbers,—and there were some came together then that are now no more,—and coming down to the present time, when we have grown up to a comparatively numerous body, bringing in every year fresh recruits, this same feeling has continued. We have never had any jars among us, except medicine jars. We have always improved our opportunities of useful intercourse to our mutual advantage. In most Associations of this kind there comes in an element of selfishness. People, to use the common phrase, come in because they have an "axe to grind." In this Association we have been remarkably clear of that. There has been a feeling that we would promote each other's interests, as well as our own. Feeling thus about it, I appreciate the opportunity to preside among you, and to feel the recognition which your suffrages have given me to-day. I feel this opportunity as particularly agreeable, and particularly in accordance with my own cherished desires; for although we never compete for office here, I am sure there is nobody who has ever been President of this Association but has felt that it was a gratifying recognition of the confidence of his fellow-members. If one of us were President here, and did not fulfil the expectations of his fellows in his future course in life, it would be a disgrace to the whole of us. We have been clear of that stain. In looking over the list of our Presidents, we may safely say they have all been a credit to us. I hope your President for 1868–69 will not be the first to break that creditable list. I heartily thank you for your friendly regard for me, as shown in this election; and while proceeding with our business, if in any way I can facilitate the operations of the Association, of course I shall be glad to do it.

There are some invitations, from various Associations in the city, on the table, which have not been formally accepted. I will state in this connection that the members of the Association would be welcome at the hall of the Franklin Institute, where they may see Franklin's original electrical machine, with some other matters of interest. The President of the Mercantile Library has requested me to extend, in behalf of the

Board of Managers of that institution, an invitation to visit their library in Fifth Street. The Mercantile Library Association have bought a property on this street, not far from here,—between here and Chestnut Street,—which is being improved into one of the finest reading rooms that can be found anywhere.

Mr. Close.—Although the Association has always been harmonious, there ought to be more harmony than ever before, since the members are all united under one *Parrish*.

The Auditing Committee reported that they had examined the Treasurer's accounts, and found them correct. The report was, on motion of Mr. Stearns, accepted, and the Committee discharged.

Mr. Daniel C. Robbins, the Chairman of the Committee on the Drug Market, read the report of this Committee, which was listened to with marked attention. After reading the statistical portion of the report and the notes on the principal drugs, Mr. Robbins said:

I think it is very easy for a house like ours to take its foreign correspondence, and get these notes in regard to all the foreign goods. Now, it appears to me—I am looking out for a big future for this country—that we should be especially careful to collect all the facts about our American drugs. Why can't we build up this Association so that we shall be looked to, instead of looking abroad for our information? Why can't we make this the place where the eye of the world is turned in regard to these matters? My report is like that on the progress of pharmacy, which I observe in the Proceedings: it is a compilation from foreign correspondence, and revised by John McKesson, Jr., who has just returned from Europe. I simply bring these notes. I have cut them down and phraseologized them.

The Business Committee moved that the report be accepted, and referred to the Executive Committee for publication, which was carried.

Dr. Squibb.—I should be sorry to see the report go by without a few remarks upon some points of it. While I heartily concur in a great deal that is said in that report, I do not concur in the condemnation of the drug law; and as it was one of the most important objects of the organization of this Association, the embodiment into the Proceedings of a report of that kind, without some one holding up his voice against that part of it, would seem as if this Association may have changed its views in regard to the drug law, particularly in its operation upon the drug trade. I admit that the drug law is an obstruction to trade, that it is an imperfect law. All our police

regulations by which crime is controlled are imperfect, and they are obstructions to trade. I am an upholder of free ideas, but where free ideas come to embrace free love, I don't uphold them. I am also an upholder of free trade, and agree with Mr. Robbins in regard to the tariff; but when free trade is extended to free booty, I object to it. We must draw some line somewhere. We cannot adopt the doctrine of free trade. It is impossible, and, as our President said yesterday, when we attempt to control the importation of drugs at the fountain-head, other nations, which have no tariff or laws of this kind, control them in detail; all the laws of Great Britain, which are very good models, control the sale of injurious articles at the time those articles meet the community for consumption. We can have no such laws, because our republican form of government only permits us to inspect beef in the market by courtesy; it is only done by the appointment of commissioners in an underground sort of way. It is not a republican institution to interfere with any man's trade. The courts have decided repeatedly that the man who buys the bad beef is the responsible man, and not the man who sells it. I am not able to go into this discussion, but those are my convictions in regard to it. I do uphold the drug law,—not perhaps as it is; I don't consider it unexceptionable,—but I think it should be improved, and I should be sorry to have this Association let go its hold of what it has on the drug market. With a free trade policy, with an abolition of this enormous tariff, which is killing the commerce of the country in drugs and everything else, there is still a possibility, and a very much better probability of obtaining a drug law of a superior character and more force, which shall scrutinize more closely, and shall do us more good. I don't believe in free trade in drugs, as we shall be thrown open to all the markets of the world, and their bad drugs would be poured into our country. If the retailer in Great Britain cannot sell a bad drug, he will not buy it. If the law prevents him from dispensing it to the consumer, he has no motive for buying them, and the wholesaler will soon not have them to sell. In that way bad drugs come to be a drug, in the ordinary acceptance of the word; they are not saleable. Then they overflow into other countries, where there is less obstruction to their entrance. With free trade, we shall be in a position to have all the overflow of the European markets turned into us. I think the President is right in his position in regard to the drug law, and that this Association has been right all the way through.

THE PRESIDENT.—I suppose the subject is open for discussion upon this or any other points brought forward in the report of the Committee. There is no motion before us, but discussion will be in order. I feel like saying—and I think, in saying it, I can speak in behalf of the Association—that we are very largely indebted to the Chairman of this Committee for the labor, the intelligent labor, bestowed upon this subject, and the vast accumulation of facts in regard to it. These tables are the most

telling of all kinds of facts, and if you can get things into that shape, where you see on a page what we can see on any one of these pages, we get a clear idea of a subject. The views of Dr. Squibb, one might suppose, would be popular in this Association, as the darling idea from the origin of the Pharmaceutical Association has been inspection at the custom house, and I believe the earliest discussions that agitated this Association (and they were pretty lively) were as to standards,—a subject which is treated in this report somewhat as to the possibility or practicability of standards to control the importation of drugs. We had pretty elaborate reports. I think they never amounted to a great deal in practice with the examiners. We finally settled upon the idea that the honesty and capacity of the examiner must be the safety of the community under this law, and turned our attention towards having the right kind of examiners, but didn't always succeed in it; and whether the time has come for us to revise our previous opinion in regard to the special examination of drugs, may well claim our attention.

Dr. Edwards.—Did I understand Dr. Squibb to refer to Great Britain as adopting any protective policy in reference to the sale of drugs, or the purity or excellence of drugs bought by the public? I understood him to say, that here we stop them at the Custom House, but in Great Britain the public were protected in the sales to the public. If I understood him correctly, he is laboring under a misapprehension, because it is not so. There is perfectly free trade in drugs in Great Britain. The public have no protection, beyond the character of the persons who sell them; there is no responsibility except in case of absolute proof of injury which is done, and it is necessary for the public to prove that they sustained that damage and injury, and from what cause; it does not matter whether a man is injured by bad opium, or from want of good opium, or killed by good strychnia,—the great question is the question of damage and the question of agency. There is no restriction about the sale.

Dr. Squibb.—That is a point I desire to make. It was not misapprehension on my part, but what I meant was, that the qualifications of those who dispense are now critically examined there, and that a bad dispenser is not permitted to carry on his business. We all suppose that if the sale of drugs in this community were confined to the active members of this Association, and to those who appreciate its objects, bad drugs would not be bought or sold; for we have the interest of our profession so much at heart, and being, as we suppose, better educated in the business, and of a higher standing, we would control the sale of bad drugs so that they should not be sold. My object was to state that the examination of the Pharmaceutical Society and the operation of the present law so controls the sale and dispensing of drugs to the consumers, as to insure them that none but qualified persons, so far as that can be done, shall dispense drugs. Then, we have the very best guarantee that none but

the best drugs will be dispensed. I did not mean to say there was any law against the dispensing of bad drugs, though I think I very likely caused that impression. My object was to show that we cannot have in this country a law that will control the qualifications of dispensers. I instance the case of a butcher. You cannot define the qualifications of a butcher to sell meat, but you can prevent him, by courtesy, from selling bad beef. So with an apothecary. You cannot control his qualifications, nor the quality of the goods he sells; therefore, we do a little towards it, by preventing bad drugs from coming into the country. We throw the whole onus of bad drugs on ourselves.

Mr. Gellatly.—I would simply suggest an idea that strikes my mind. I do not feel qualified to speak at all at length on the subject. As I understand it, the Association were the originators of the present drug law; it was mainly through their instrumentality and efforts that this present law was passed; they have been the champions of that law as I understand it. Now, our friend Robbins comes before us, as Chairman of the Committee on the Drug Trade, and presents a report to this Association which has, as I understand it, already been received, and is now about to be adopted by the society, then to be published under their sanction, and thereby the Association will sanction the sentiment of the report. It seems to me that we are likely to be led into somewhat of inconsistency in this matter. As I understand it, the report states that it looks forward to the time when the present drug law will be repealed, which gives up the whole question. The only thing in my mind is, whether, after discussing the question of the law itself, its merits pro and con, this society is disposed, so to speak, to take the back track in regard to this matter, so flatly as that. I would suggest that it might be desirable that that part of the report be referred to a special committee, to modify that part of it somewhat. It seems to me that Mr. Robbin's ideas might be met by a slight modification of the phraseology of the report. I do not doubt, as Dr. Squibb has stated, that there is quite a diversity of opinion in reference to the operation of this law, whether it has accomplished what was expected of it, or done as much good as it ought to do. It is very possible and probable that some modification of the law might be desirable, and that this Association might take ground to procure this modification; but it strikes me, the way it reads now, that we are likely to commit ourselves to something which we are not prepared for at this time.

Mr. Robbins.—If this committee had been a permanent one in my hands, I should have hesitated in making the report as I have made it. I, of course, go out of the committee this year, and I felt it my duty to express myself openly and candidly on any subject laid before me; this subject came before me, and I did so express myself. Still the proposition of Mr. Gellatly is the very one I was about to make. I think it would be unwise, at present, to touch this examiner's law; there are

so many other things that need to be done. Recollect, I don't want to discourage your pet kitten. That has done all the injury it can do, and in the present condition of the country, it is no injury. I was not aware that this society was so committed to that law, and if you will hand that report to me, I will alter it; but I have had my say and my thought upon the subject, and that is all I wanted.

MR. MAISCH.—In accepting and publishing a report, the Association has always held that the views expressed in that report are not the views of the Association, unless the report is adopted, and the suggestions contained therein are adopted. Unless adopted, a report and the views expressed therein are always and were always held the personal views of those who presented them.

MR. PROCTER.—That applies to all the papers. I do not know whether it would apply in this case; I think it is doubtful.

MR. TAYLOR.—A report of this kind would not bind the society to the views contained in it, unless we adopt it as our views. Accepting the report, places it on our minutes.

Mr. Robbins proposed to alter the report by striking out one sentence.

DR. SQUIBB.—The difficulty in the examination of drugs is met in this way. When an examiner has difficulty in deciding whether a drug comes up to the required standard, the practice has been to send round to a few experts, and say, "Here is a sample offered for entry in this port; what is your judgement upon it?" He has repeatedly done so to me, and to others that I know of. He then has expert testimony and is guided by that. That is a standard that Mr. Robbins and I both apply to trade, and the drug examiner can get that standard as well as he or I can.

Mr. ROBBINS.—Well, I pretend to know something about drugs, having been in the trade since I was eleven years old, but I don't feel at liberty to give any man the right to reject or pass goods.

MR. HEYDENREICH.—In most countries there is a censorship.

MR. MAISCH.—Mr. Heydenreich refers to the examination of retail stores. Mr. Robbins refers only to the trade at large.

Mr. ROBBINS.—It goes as far as this; if this is worthless, reject it; but if it is not, it cannot be rejected.

DR. SQUIBB.—But a standard is needed to say it is worthless.

THE PRESIDENT.—I was taken by surprise in regard to this report at the time I put the question, and put it as accepting the report. The Association is perfectly right to accept it. Now, it is subject to the action of the Association.

MR. MAISCH.—Allow me to give an illustration of the working of the drug laws in Germany,—and I think Mr. Heydenreich will concur in my

statement. In the German Drug Market, you may find good and bad jalap root, some perhaps which does not contain more than 3 or 4 per cent. of resin of jalap; but if jalap root or powdered jalap is found in an apothecary's store, which contains less than 15 or 20 per cent., he will be censured for keeping that very article of jalap. Such inferior qualities are used for making resin of jalap, for which purpose they are adapted.

Mr. Heydenreich.—I think that censorship takes the place of the law we have here.

Dr. Squibb.—In regard to the position which this report takes in our proceedings, it may be proper to state that the acceptance of a report does not endorse its sentiments, as Mr. Maisch has already said; but if the report goes on the record and is published as part of the proceedings of the Association, unless this statement appears with such a report, or in conjunction with it, in some shape or other, it is generally accepted as the work of the Association, and that is what my remarks were intended to forestall. I intended my remarks to go upon the record, to show that at least one in the Association did not agree with some of the points in this report. I don't know that it is necessary to adopt the report at all, as we have not been in the habit of doing it, or that it is necessary to obstruct its publication in any form. It is rather trampling upon his independence to ask the Chairman to modify it in any shape, because he says he is the author of it very plainly. If the discussion merely shows that a portion of the Association do not adopt Mr. Robbins' criticism upon this law, it may go safely; it can do no harm, and then the good it has in it will have an opportunity to do all the good it can, for it is a very excellent report in many respects.

Mr. Procter.—If there was any doubt as to the committal of this Association to the views of the Chairman of that Committee, as regards the uselessness of the drug law, there asserted, and if there are a number of members who take the opposite view, it would be very well for them to express themselves. I think the way the thing now stands and will go down, those who read the report in our published proceedings will come to the conclusion that we have pretty much given up our hope of the drug law as a means of excluding bad drugs. If there are enough present who take the opposite view, as represented by Dr. Squibb, I think it would be well to have a committee appointed, whose report would have to be published with the other.

Mr. Lincoln.—This Association has advocated the enactment of the drug law; it has done good, as we all know; and as Mr. Robbins allows in his report that it has done good, I think all that will be necessary will be to alter the word "repealed" to the word "amended," and that will answer all our views. Instead of striking out the whole sentence, I propose to strike out the word "repealed," and say "amended." We must all allow that the drug law has done good, although it is not a perfect model.

THE PRESIDENT.—I would suggest that a very good way to make this appear right upon our records would be for the Association to take a vote upon the propqsition to alter the report in this way, before it shall be referred to the Committee for publication. If it is the sense of the Association that it is better to omit this paragraph, rather than have it returned to the Chairman, let the Association strike that paragraph out by vote, and in that way express its sentiments.

MR. CLOSE.—Perhaps it would be better to pass resolutions that the Association is not to be understood, in accepting this report, as sanctioning that part of it.

MR. GELLATLY.—Are we to understand that Mr. Robbins has, with the consent of the Association, modified the report?

THE PRESIDENT.—Tacitly; we have not taken any action.

MR. GELLATLY.—Then what is the necessity of further action?

THE PRESIDENT.—Prof. Procter and others are desirous of expressing something further.

MR. LINCOLN.—My idea is to strike out the word "repealed," and, while recognizing the value of the drug law, at the same time say that it can be improved.

DR. SQUIBB.—All the previous matter of Mr. Robbins' report points directly to that paragraph. That is the sum of what he has said, and to alter that, leaves the argument in force, but simply cuts out the conclusion. We aim to show that there are some who don't agree with his arguments or his conclusions, in regard to the inefficiency of the drug law. I admit it has been comparatively useless, but it may be amended, and our aim should be to have it amended, to make a new law, if you please, that will take the place of this law. But the desire now is, as the report is altered (and therefore Mr. Lincoln is a little out of order in referring to a matter which has already passed, because the Chairman had stricken that out)—

THE PRESIDENT.—He had no right to do so.

DR. SQUIBB.—It was tacitly agreed to, if the Association did not vote upon it. I was going to say that it would be better if the Association could take a vote, and get an absolute expression of opinion as to whether they endorse the remarks of Mr. Robbins upon the drug law, or not, and that, going as a foot-note with this report, shows that the Association are in doubt as to the wisdom of any criticism of the drug law, except so far as amending it is concerned.

MR. HEYDENREICH.—I think it is only justice to Mr. Robbins that this matter should be referred to a committee, and I therefore move that that part of the report be referred to a special committee of three, to report this afternoon.

The motion of Mr. Heydenreich was seconded, and carried unanimously. The President appointed on that Committee Messrs. Wm. A. Gellatly, Daniel C. Robbins, and Professor Procter.

The Business Committee brought forward the resolution suggested by the Permanent Secretary in his report, in relation to members who have been dropped from the roll.

MR. MAISCH.—The object of the resolution is simply to save our Treasurer a great deal of labor and writing. Members who have been suspended from the rolls from time to time, pay their arrearages; and the custom has been to admit them again as members in good standing, as soon as they pay up their arrearages. It is proposed by this resolution that those members rejoining the Association should be able to rejoin only on the condition that they give up their life membership, if they ever did possess it. It is no more than proper, I think. The resolution reads: "*Resolved*, That members who have been dropped from the roll, after settling their arrearages, can join again only by waiving their right to life membership, if they ever possessed that right previous to their delinquency."

The motion was agreed to.

At the request of Dr. Squibb to fix a time when he might read some papers which require illustration by specimens, the Association, on motion of the Business Committee, fixed for that purpose the opening hour of the session of to-morrow forenoon.

The Permanent Secretary read an invitation from the Directors of the Sanitarium for the treatment of persons suffering from the effects of alcoholic stimulants, &c., at Media, to visit that institution.

To test the sense of the Association in relation to the suggestion of the former President to re-establish life membership on the payment of one hundred dollars, the Chairman of the Business Conmittee made a motion to that effect, which, however, was not seconded, and consequently no action was taken thereon.

The local Committee of Arrangements gave notice that the ladies accompanying the visiting members are invited to a drive to the rural districts this afternoon.

On motion, the Associatiou adjourned till 3 o'clock this afternoon.

Third Session.— Wednesday Afternoon, Sept. 9.

The meeting was called to order by the President, at 3 o'clock.

Dr. Squibb, acting for the Business Committee at the request of its Chairman, who was absent on other duty, brought forward the suggestion of the former President, recommending the members of each State to furnish the Executive Committee with information regarding the decease of members, and said:

If the members in the different states, whether organized or not, would take it upon themselves to notice the deaths or casualties that may occur within their reach and notify the Executive Committee, it would very much reduce their labors, and at the same time be the means of getting more definite and certain accounts of the casualities that may occur. I will lay it open for the consideration of the meeting, as to whether anything definite need to be done in this respect.

The President.—The suggestion was that members in the respective states should report from time to time to the Executive Committee the deaths of members of the Association. It seems to me to be too general in its character. Would it not be well to have an obituary committee, like we have in the Philadelphia College of Pharmacy,—selecting from various localities those who would be most likely to become cognizant with such facts?

Dr. Squibb.—It seems to me the effect might be accomplished, if, from time to time, notice was given in the Proceedings whereby members might have this matter brought to their notice. Any member would very cheerfully take cognizance of any death that occurred within his knowledge and transmit the notice thereof, if it is only brought to his mind that there was such a necessity. If in the Proceedings of this year notice is taken of this discussion, that, with the suggestions of the President, it would seem to me, would accomplish the object, though some action might be needed through a committee, or in some other way. I should think the Executive Committee might take notice of this matter, and suggest to the Association a plan by which the object might be accomplished.

The next suggestion of the former President, that a volume of the Proceedings be sent to the Librarian of each State, was not acted upon directly by the Association; but the suggestion was regarded as a good one, and it was left to the Permanent Secretary to carry it out.

The propriety of applying for an act of incorporation by the Congress of the United States, was now brought forward.

DR. SQUIBB.—The President recommends that this body obtain an act of incorporation from the Congress of the United States. Now, in order to open the matter for discussion, I move, on the part of the Business Committee, that such an act of incorporation be obtained.

THE PRESIDENT.—The motion is open for discussion. A good deal might be said, no doubt, about it. I think, heretofore, the proposition has been rather connected with the idea of localizing the Association. There is another proposition in the President's message which seems to belong with this—the proposition in regard to meeting certain times in Washington and having an officer there. Would not that come in with this?

DR. SQUIBB.—If his design is accepted or carried out, or there is any serious intention of doing it, it would appear to be necessary to appoint a committee for the revision of the Constitution. Some form of local organization in Washington as the seat of government would be necessary, if the application for incorporation is entertained, and a good many things would have to be discussed, which it may not be necessary to bring up now; therefore we had better decide whether it be desirable to apply for an act of incorporation; if decided in the negative all these other matters suggested by the President are likewise disposed of, and we shall have gone far enough for the present.

MR. MAISCH.—I would like to know whether all the conditions are known upon which we may possibly obtain an act of incorporation from Congress. I remember very well, that some nine or ten years ago, a petition was sent to Congress for an act of incorporation, which was never acted upon by Congress. In 1860, Mr. Colcord, in his annual address as retiring President, stated, so far as I remember, that the main opposition on the part of Congress would be that our Association has not a local habitation in Washington. I may state that, about 15 months ago, on my own responsibility as Secretary of the Association, the matter having been brought up several times and occupied a good deal of time, I addressed one of the representatives in Congress from this city on this subject, desiring him to let me know upon what conditions we could obtain an act from Congress, but I never heard from him and so I am unable to give any information in regard to it.

DR. SQUIBB.—The mere question is whether we desire an act of incorporation. It leaves out whether we can get it, or on what condition. My opinion is that the generality of the members don't desire an act of incorporation; that they think the advantages we have in moving about, in being so thoroughly migratory would not be counterbalanced by having a fixed or localized position and changing the scheme of the Association. I think we have gotten along so well that many of us would be glad to see affairs go on in the same channel, at least for a few years. I dont know any permanent good that would result from an act of incorporation.

MR. MOLWITZ.—I think it would be well to have an act of incorporation, so that Congress might recognize our profession. In the army of the United States, pharmacy has no standing at all; we are not recognized in the army now, and were not during the late war. I think it would be productive of good for our profession, if we could secure an act of incorporation, and thereby gain for pharmacy a recognition in the war office of the nation. It would give us a standing and a dignity which we do not now have. The United States are a hundred years behind other nations in this respect. Every other nation has recognized the claims of the apothecary. They have pharmacists in their war and naval departments, while in this country a pharmaceutist who serves as a dispenser of medicines in the army or navy is designated as "hospital steward." Why should not our profession be recognized as a profession in these departments, instead of its members being classed as "hospital stewards," which is a very mean term to apply to them? When we take out our licenses we take them out as "apothecaries;" but when we go into the army we are "hospital stewards." It may not be out of place, it seems to me, to petition Congress to recognize our profession either in the war or the naval office, or both. We also should ask Congress to institute some supervision over our profession. Every state has commissioners to examine weights and scales, but they never examine the apothecaries' weights, because they have no authority. I think we ought to petition Congress for proper regulations governing our business.

THE PRESIDENT.—I think the gentleman misapprehends our institutions. It is not the custom of the general government to legislate for the several states in matters of this kind, which are municipal. We have a very elaborate report embracing that subject—the report of our committee on legal matters. The present subject is a recommendation of the late President as to an act of incorporation. There is a motion before the Association that we should proceed to make application to Congress for such an act.

MR. PROCTER.—My own view is in opposition to such a course. I don't approve of it.

MR. STEARNS.—I think the matter has been up so many times and dropped so many times that it has led me to coincide with Prof. Procter. I don't think it is advisable at all, or available. You could not get it if you wanted it.

MR. BEDFORD.—My views are the same.

PROF. MOORE.—I don't see any practical advantage in incoporation.

The question was taken on the resolution offered by the Business Committee, and decided in the negative by a unanimous vote.

The Business Committee proposed the early appointment of a committee to examine specimens, and suggested that the committee, instead of furnishing merely a catalogue of the specimens on exhibition, would make a report founded upon careful observation of the same.

The President appointed the following Committee on Specimens: Dr. Fred. Hoffmann, New York, Chairman; Professor Robert Bridges, M.D., Philadelphia; N. H. Jennings, Baltimore; Matthew F. Ash, Jackson, Miss.; Geo. W. Sloan, Indianapolis, Ind.

The Business Committee brought forward, as unfinished business, the communication of the East River Medical Association of New York, in regard to the renewal of prescriptions without authority previously obtained from the prescriber, which had been received Sept. 13th, 1867, and action upon which was postponed on account of the near close of the meeting (see "Proceedings," 1867, pages 112—114). In accordance with the suggestion of the retired President, the Business Committee moved that it be indefinitely postponed, which motion was opposed by Prof. Procter, Prof. Maisch, and Dr. Edwards, and was then withdrawn.

Dr. Edwards—Although this is the first opportunity I have had of addressing your Association, I have been a diligent reader of your Proceedings, and am not ignorant as to the phase of this subject in your Association. The understanding in England unquestionably is that the prescription becomes the property of the public. The physician receives his fee for consultation, and it is optional with the patient whether or not he shall call in his physician again, and give him another fee for the further use of the remedy. It is also perfectly well understood in England, that the transaction between the patient and his physician ceases when he has paid his fee, and wishes no further consultation with him on the subject. He has no retaining fee, to come as long as he likes, for a continuance of his fees; for he might destroy one prescription only to write another, and the patient, being ignorant as to what the prescription of the physician is, would be unable to protect himself against a series of prescriptions which did not alter the treatment. It is a perfectly well understood thing, also, that there should be no collusion between the physician and the dispenser of the prescription; that the physician should charge such a fee as he considers fully remunerates his services in the matter, leaving the druggist to charge a reasonable fee for his time and attention, without any consideration of any fee to be handed over to the

physician for his patronage. A practice has crept in between the junior members of the trade and the less prominent physicians, in which there is an interchange of understanding very detrimental to the interests of the public, and I think also detrimental to the *morale* of our profession, and very undignified in the medical profession, and therefore I think it is quite as well such a subject, coming definitely before the Association, should receive our comments from a moral point of view. If the patient were to know that there was such a practice between his physician and the dispenser of that physician's prescription, that the physician was to receive a portion of the gain, that the prescription was written in such terms that it could only be made out by a particular chemist, between whom and the physician this private understanding had been had, and that there was to be a share of the proceeds from that dispensing of the prescription passed over to the physician in addition to his fee,—in that case the public would repudiate the transaction, and would release themselves from such medical treatment and such pharmaceutical practice; they would not patronize a doctor when they knew they were to pay him partly by direct fee, and partly by implied profit on the dispensing of the medicine he prescribes; and they would not patronize the pharmacist who was a party to such an arrangement. I think this Association would do well to commit itself to an expression of opinion as to whether such things are desirable or not. There is a good plea for the practice of writing prescriptions in the Latin language, and a good plea for the education of the physician that he may use that language, and for the pharmaceutist that he may understand it; but if you admit the private understanding between the physician and the pharmaceutist, that the physician is to receive a portion of the proceeds of that prescription, and that the patient is not allowed to have it repeated as often as he thinks proper,—that he shall have the use of that prescription only once,—you get into what has been called in the pharmaceutical journals "stenographic prescriptions," not written in the Latin, or any other language, and intelligible only to the particular druggist who puts up the prescription. There can be no greater evil than these "stenographic prescriptions," in which this private understanding exists. They have caused a great deal of trouble to conscientious chemists, who are obliged to confess that they don't understand the language in which the prescriptions are written. They are able to make up German, Latin or English prescriptions, but in these cases they are obliged to send the patient away, being met by the difficulty that there is this monetary understanding between the physician and the pharmaceutist. That, I think, is a practice which we as a body should discountenance. In Montreal it has shown itself, I think, in a very reprehensible manner and to a very reprehensible extent; so much as 33⅓ per cent. of the price of the prescription, whatever that may be, is understood to go to some physicians, and it has been reduced to such a poor business that the physician will

follow his prescription, and get his one third, almost as soon as it is dispensed. That shows what we will come to, unless you as a body put your foot upon such practices—I may almost say, for they are such, in my opinion, such malpractices. This practice has been condemned and discountenanced by some of the most respectable of both professions, but it is well known that sometimes, when it is not openly or professedly done, it is done quietly, on the sly, with two or three houses; certain medical men being favored in this way while others are not, and the public is kept in the dark. Now if there is to be such a tax as that, we do injustice to ourselves and to the public. We charge them, not for our own knowledge, but for the physician's knowledge. The percentage becomes so large and so important in the consideration of the physician, that he frequently changes his remedy, sending his prescription to the druggist who will pay him the largest percentage, sometimes regardless of his professional qualifications; and the next thing will be that the physician will only write his prescription once, and will require to see the patient and get another fee to write the prescription over again. That is not only the fact, but some physicians have actually claimed from the druggist not only their first proportion of one-third on the proceeds of the prescription, but have called again and wanted to know what renewals had been made, and have requested to see the books, that they might ascertain whether the prescription had been put up again. All the members can see that such a practice will only end in confusion, and a system which might almost be called collusion between the medical men and the chemists, and I think we should be acting right to express our opinion that such a practice is not becoming the dignity of this profession or of the medical profession.

Mr. Close.—The preceptor with whom I served my time said to a physician who came in and made the remark to him that he had been offered, or could get such a percentage on the cost of putting up his prescriptions, at such a man's store: "Give him my compliments, and tell him he is a scoundrel and you are another!"

Mr. Maisch.—Dr. Edwards has spoken about the moral effect of such a proposition as is made by the East River Medical Association; I should like to view the subject from a legal point. I think it is customary to look upon usage as law, unless it is met by a law. In the United States, certainly, the usage has been that the prescription, after it has been written, does not belong to the physician. We, as pharmacists, have claimed a right to retain the prescription, and I believe there is a reason for claiming it which is very frequently overlooked,—namely, the usage of our physicians to write the prescription in lead pencil,—a mode of writing which can be altered at any time, so that the alteration can afterwards not be noticed. I am glad to hear that in England the usage is the same, that after the prescription has been written it does not belong to the physician; and certain it is, that by legal enactments, at least in

Germany, France, and other countries of Europe, the prescription, after it has been written, belongs to the patient, and neither to the apothecary nor to the physician: but in those countries physicians are compelled by law to write their prescriptions with pen and ink; they are *not* allowed to write it with lead pencil. There are only certain cases of emergency at night when the right is given to write in lead pencil, and the physicians are compelled, the next morning, to come round to where the prescription has been put up, and write it in pen and ink. The apothecary marks the prescription with the date and price, and then, unless that mark is on the prescription, the apothecary can state that it was never put up at his place. Looking at the subject in this light, that by legal enactment, at least in several civilized countries, it has been established that the prescription belongs to the patient; looking at it in this light, that by the long usage in England, it has been established that the prescription does not belong to the physician, and that the case is the same in the United States, I don't see how we, as apothecaries, can be expected to alter that practice. If physicians want it altered, it is their duty, and their business, to alter it, not ours. They cannot expect us to refuse to put up prescriptions and renew prescriptions when called for by the patient, because we certainly are open to a suit for damages, or at least a suit for retaining property which belongs, in my opinion, to the patient. I have made it a uniform practice never to refuse to hand over a prescription to the patient if he wants it; but I prefer to retain it, simply for the reason I hinted at before,—that they may be altered, being written in lead pencil. Suppose the prescription is written for a poisonous article, and I put it up, and hand back the prescription. That prescription may be altered; the dose or quantity of the poisonous article may be erased by India-rubber, and another quantity substituted; and my medicine, according to that latter prescription, would then be wrong. That is the reason I prefer to retain it. If physicians were in the habit of writing in pen and ink, so far as I am concerned, I would not hesitate to give up the prescription to the public, to whom, in my opinion, it rightfully belongs.

Mr. Wiegand.—Some years ago I was called as a witness in a matter about drugs, and the question then came up about the right to retain that paper. It was said that it was the only protection the pharmacist has against any accident in case the prescription had been written wrongly. If the mistake had been made by the physician and the pharmacist should permit the prescription to go out of his possession, he had no redress at all. The evidence would all be against him, and he was therefore bound to protect himself by retaining possession of it. It was his voucher for having done a certain work on which a great deal of consequence might depend. If he retained the prescription he had his voucher for what he had done. That was the opinion of one of the best lawyers in the country.

Mr. Molwitz related an incident of an apothecary who received a pre-

scription for a grain of strychnine instead of santonin, to be given to a child, and who, after dispensing the prescription, was called upon by the prescribing physician, who requested to be allowed to look at the prescription, and on being shown it, remarked, "I would like to take this home and look the matter over," and took it away with him, thus removing the apothecary's proof that he was not responsible for the mistake.

MR. MAISCH.—I would shut up the shop of that apothecary, or any other apothecary, who would dispense a grain of strychnia to be given to a child in one dose.

A MEMBER SAID:—It is not the business of the apothecary to look at the dose, so long as he follows the prescription. I have dispensed strychnine by the 10 grains at a time and should do it again, if required by a prescription, but I should retain the prescription. If a prescription is put up in any store, and the physician should get back the prescription, what proof has the dispenser to show that he was right and the physician was wrong. So with many other instances. I have known cases where people themselves have altered prescriptions—when having a prescription for a grain, they have altered it, and made it an ounce.

MR. EBERLE.—If the dose was marked on the prescription, it was certainly culpable to have any one trusted with dispensing, who would dispense without examination or inquiry, anything of that sort. I have had two prescriptions within the last six months, quinine and strychnine being both administered, in one of which there was one drachm of strychnine to one grain of quinine, and in the other 24 grains of strychnine and 24 grains of quinine was written. In this manner of writing the prescription it is the business of the apothecary to guard the physician where such evident mistakes are made, and these matters should be settled between the apothecary and the physician, so as to prevent any bad feeling arising between the two professions whose interests are so nearly identical. The apothecary should hold the prescription as proof of the correctness of it, but if a family demand its return or a copy, these errors should not go before the world; but it is the duty of the apothecary to protect unintentional errors on the part of the physician. At the same time, cases are constantly occurring where prescriptions dispensed by the apothecary and prescribed by the physician become popular as a household remedy, and the prescription is handed from one party to another for repetition, and more than one family gets the benefit of the physician's knowledge and skill, while he had attended probably but one patient. That certainly seems to me to be clearly wrong, and there ought to be some definite plan arranged whereby both parties can be protected, the physician as well as the apothecary.

PROF. MOORE.—Common usage makes the prescription the property of the patient, but common sense makes it the duty of the pharmacist to

retain it. My custom has been, where they have asked for the return of the prescription, to give a copy and keep the original. The prescription is the apothecaries' voucher for the correct dispensation of the prescription. Physicians often will write a prescription in plain English, and any patient of common sense can read it; they do read it and they know what they take. I know a physician who went round and made a special request that the apothecaries should not renew his prescriptions. I told him I was willing to comply, but he must stand the brunt of it. The next day a prescription came in for four ounces of bitter wine of iron. Four days after the patient wanted it renewed. I told him that I could not renew the prescription, and he said, "I don't care whether you renew the prescription or not; give me four ounces of bitter wine of iron," and I sold it to him. In the afternoon he came in with a prescription for three compound cathartic pills, and when he wanted the prescription renewed, and I told him the same thing, he said he didn't care whether I repeated the prescription or not, "Give me three compound cathartic pills." Physicians are often in the habit of prescribing somebody's pills, etc., and in such cases it is impossible for us to refuse to repeat the prescription. One old woman who takes them gets better, and she sends all the old women in the neighborhood to buy, and we keep selling and sell more than we ever did. So long as the physicians write in that style, their prescriptions will be repeated, and the patient will get the medicine. They read them as fast as I do. They are all written in English, and sometimes very poor English at that. There is the great trouble. Undoubtedly, the prescription after it is written is not the property of the physician; it may be the property of the patient, or it may be the property of the pharmacist, but it certainly is not the property of the physician. When he has written the prescription and has been paid for his visit, he is done with that prescription, and he has no right to it whatever. That is certainly the case in common law in this country, and would be so decided in any of our courts, and if they should attempt to say that the patient shall not have a prescription repeated, they would attempt to regulate what they cannot control. A man has a right to do what he choses with his own property. We should undoubtedly discourage the repetition of prescriptions, for I have known patients to injure themselves, but yet the pharmacist was not the responsible party, but the patient himself. When the patient presents a prescription, the pharmacist is not supposed to know what he wants it for.

Mr. Eberle.—Suppose the physician should go to the druggist and ask that a certain medicine should be given. What does the patient then get in return for his fee? No piece of paper, and the prescription not being written by the physician, if the apothecary takes a copy of it he is not bound to return it. It is the apothecary's property and not the patient's. It seems to me a great deal of this collusion might be prevented if there was an honorable course of action agreed upon and followed by both professions.

I don't think we have much such collusions here, among those who are in high position and standing, but it exists among a lot of the smaller fry, and among a better class of men only to a very small degree. I know of a case in which a physician prescribed tinctura digitalis composita, a preparation which is not in any of the officinal text books; but upon search being made, a formula for such a preparation containing opium was found, and this was put up, but complained of by the physician. The prescription was originally prepared in a store where this physician had left a recipe for a compound tincture of digitalis, differing from the one mentioned, and the druggist who had this recipe did not hesitate to give a copy of the prescription to the patient, believing that he could not get it put up at any other store, but not telling him that the other stores did not have the recipe for this preparation. These are cases which are occurring among us, and which give rise to a good deal of trouble. It is evidently becoming more and more necessary that the dealing between physicians and pharmacists should be strictly upright and honest.

Mr. Stearns.—It seems to me that we are wandering a great ways from the point at issue. This communication from these gentlemen has in view the idea of enlisting the services or efforts of pharmacists to do away with a difficulty or error. This discussion, throwing upon the medical profession the idea of collusion, and mistakes and bad Latin, is, it seems to me, rather out of place. What the physicians ask is, that the pharmacists, through their associations, and through their individual efforts, will assist them in curing disease. Now, in all diseases there are constant changes going on. A physician is called to a patient in some important case, and the condition of that patient is constantly changing for better or worse. He leaves a prescription for the patient to use, and it may be repeated without the physician's attention being called to it, and the difficulties arising from that course of the patient's calling a physician once,—he perhaps being in a dangerous condition and not knowing it himself,—and repeating the prescription, are what the physicians desire to overcome. That should be changed. They wish to have the prescribing of medicines kept in their own hands, and, it seems to me, they have a strong case there. I should expect a physician would watch my case, and any change I should want him to prescribe for, and if it was his advice that a prescription required renewal, it is certainly no great difficulty to order that renewal, and it is certainly no great sacrifice in the profession to concede that. The question of the property in the prescription, in the abstract, I think is very clear. I think there is no question at all but that it is the property of the pharmacist, for the various reasons that have been given. The physician writes the prescription for the benefit of the patient, and directed to some supposed pharmacist to put up. For the protection of that pharmacist, he ought to retain the original prescription. If the patient desires possession of it, it is easy

enough to give a copy. Possession is nine points of the law, and I believe that the prescription is certainly the property of the pharmacist, and he should retain it. I think that the complaint of physicians in regard to the indiscriminate renewal of prescriptions is certainly very reasonable, and is entitled to fair consideration from us.

MR. PROCTER.—I agree with Mr. Stearns entirely, that we are wandering from the point at issue. If we go on to discuss the matter in the way it has been discussed, it will take the whole afternoon. These gentlemen ask whether we are willing to co-operate with them in making it a law by agreement, not to renew prescriptions without the authority of the physician, and it seems to me to be right that we should express our views as to whether we approve of such co-operation. In the abstract, I can agree perfectly with these medical gentlemen, that much harm may come from the renewal of the prescription, but to pass any such stringent regulations as they have proposed in some of their meetings, making it penal on the apothecary to renew a prescription without the authority of the physician, I think is perfectly absurd in view of the present way of writing prescriptions, and the present amount of care that the physicians at large give to that branch of their duties. But almost invariably, when I have talked with physicians who have a large business, they don't care a straw about it; they don't feel any interest in it, and if you will investigate it, you will find this complaint originates almost always among a class of physicians who have not a great deal of practice, but who are perhaps engaged either as journalists or writers, or some other way. Suppose the apothecary would not renew a prescription in an important case, that physician is bound to see his patient within a reasonable time, to see that he gets it renewed. It is not the apothecary's business to run after him, and tell him that the patient wants the prescription renewed, and ask him: "Shall I renew it?" I don't believe that it is in the power of the physicians to live up to the law that they want to make the apothecaries live up to. I think we had better, in a civil, plain and straightforward way, give it as the opinion of this body, that we don't agree with their proposition, and we don't think it could be carried out.

PROF. MOORE.—I agree with Mr. Procter and Mr. Stearns, that we have wandered far away from the point, and further than that, we have no point. There is no question before the meeting and no resolution. For the sake of having a point, I move that the matter be indefinitely postponed.

DR. EDWARDS.—The practice which is adopted almost universally in England and Scotland is, when a prescription is presented by a patient, it is at once copied and a record made of it in a large ledger. A stamp is put on the prescription, and a number and reference is put upon it, which will enable the pharmacist immediately to refer to his copy. The copy is generally made by the clerk who dispenses the medicine, so that he has time during the act of copying to study the prescription, and make

himself thoroughly familiar with it. He then makes it up, and passes the medicine to a second clerk, and the second examines both copy and medicine, and, so far as he can, verifies the fact that it has been properly prepared and properly copied. The chemist thus has a perfect protection, by the evidence of two witnesses, that the prescription has been correctly copied, and he has two witnesses to prove what the physician has written. The prescription is then returned to the patient with the medicine. I could adduce instances which are the reverse of those which have been quoted, in which, when errors have been made, it has been some protection to the physician to have his prescription in the hands of the patient rather than the druggist. An instance has been shown where the evidence of an error was destroyed by the physician who made it, but that might be done by the druggist. Our European plan is the best. It takes a verified copy, and the original goes to the patient, and is considered his property. There are two or three houses in London who have had a regular system of keeping prescriptions. It is generally understood in those cases, however, that the prescription is kept and not returned, and some consider that they have a little vested interest from the fact that they have a prescription book that goes back a long way, and families are obliged to come to them a long way to have their prescriptions renewed. That is not convenient, nor the general custom. It is the practice only with a few leading London houses; but the universal practice in Liverpool, Manchester, Edinburg, Glasgow, and all the leading towns in England, is to copy the prescription and return it to the patient. Then, I don't see that there is any such objection as has been referred to now.

THE PRESIDENT.—I think it is a matter of too much importance to pass upon, even after this discussion at this time, and if a motion were made that a committee should be appointed to draw up a resolution expressive of the sentiments of this Association on the subject, we then could have it before us to-morrow and pass it. I am willing to say, personally I have a good deal of interest in this matter. I feel myself partially precluded from expressing myself on these subjects, except where there might be a tie vote. However, I will say that I think the practice of retaining the original prescription by the apothecary is thoroughly warranted, not only by long practice, but by common sense. It is to the interest of the party getting the prescription put up, that the apothecary should keep it, because in nine cases out of ten, after a series of months, the envelope containing the prescription will be mislaid. We all know how constantly this occurs in our practice. We give the prescription to such patients who are very zealous to have a copy of it, put up in a nice envelope; but the next time they want it, this envelope is not to be found, and they depend upon the number of their label to get the medicine. The physician, if he wants it, can rarely get it, if it has been handed to the patient, but it is in a good position if it is on the file of the apothe-

cary. If he can get the date of the visit, he can get the prescription he then gave, which is of very great importance. The only difference between the English plan and ours is, whether we should keep the original or a copy. It is only of importance in matters of accident and mistake, and there, I think, we are perfectly right in considering possession nine points of the law, and keeping the prescription ourselves and giving the copy to the patient. I would not like to do anything that will give offence to the physicians in New York, or any where else, but I think we should assert this principle. I think it will go with dignity from this Association. In Philadelphia we keep the original. I always retain the original and give an authentic, correct copy of it, which I take care is correct. If I am charged with giving an incorrect prescription, there is the original on my file. Nobody can mutilate the original, while they can mutilate the copy. We have physicians who print on the back of the sheet of paper, "This prescription is not to be renewed or copied without special orders from the physician." When we get a prescription of that kind, we call attention to it, and tell the patient, "If we put this up, we don't renew it for you." In all other cases, we think the patient has a right to the prescription. If he brings it back to us, unless we think it is an injury, we renew it. In some cases, as for instance when nux vomica is prescribed, we say to the patient, "You must not be taking this all the time; it is a kind of cumulative remedy," and the moment you give that suggestion, they go back to the physician; but in chronic diseases, it would be utterly impossible for us to comply with the request of these gentlemen.

Dr. Squibb.—I think almost all the points that are susceptible of being discussed have been brought up, and I think the discussion itself will be of very great use, not only among ourselves but among physicians. It has always been clear to my mind, and has been made clearer, that the original prescription belongs to the apothecary, no matter what practice occurs elsewhere; that in common law and common practice and equity, it belongs to the pharmacist. When the physician has given his prescription, he has given something for which he is paid, and the benefit belongs to the patient, but the order upon which the benefit has accrued belongs to the pharmacist. The prescription is directed to him tacitly, if not directly. The physician may not direct it to any special pharmacist, but to *a* pharmacist; the act itself means that. Now, then, we will suppose that a physician is called to a patient. He says to the patient, "If you will put your feet in mustard water and pursue a given regimen, you need no medicine and will get well." His fee at once accrues upon that advice. If he writes that upon a piece of paper does it make any difference? The justice and the equity are the same. Therefore it is the advice he gives, and if he chooses, for the security of that patient, to write that advice on paper, if it involves anything dangerous in any shape or form, or thereafter is to be renewed, the principle is the same. He writes his order to

secure this benefit to the patient. Who is that order upon? The pharmacist. It is an order upon him to have that put up, and to pursue the directions of that physician, for which the patient pays him. If there is any harm done, that order is his authority in law and justice, and it should remain in his possession, to be produced whenever necessary, before a coroner's jury or any where that it may be wanted, in consequence of any casualty. The giving of the copy is quite another thing. I think the pharmacist is always justified in giving a copy. I think, also, he is very rarely justified in repeating a prescription without order. If he does it, he must do it upon his own judgment, and no rule and no law will bind him. This Association may pass any rule it pleases in regard to the matter, but it cannot bind common usage. A physician who gives a fluidounce of syrup of rhubarb, and asks that that prescription shall never be repeated, prescribes to that pharmacist that he shall never sell any more syrup of rhubarb to that person. If the syrup of rhubarb can never be again sold without a written prescription, it obstructs the thing entirely. An article in common use may be excluded from sale by any such regulation as that. I mention that as an extravagant case, to show that no such rule as is proposed here ever could be adopted with justice. There are various other points involved in this subject. Any pharmacist would refuse to put up a prescription manifestly injurious in its character; he would put it up if he sees no harm in it; and again, if the order he received before, and is now asked to repeat, was for an important and powerful medicine, and there were important circumstances attending it, he must judge for himself whether he will or will not renew it. Physicians don't want to be obliged to write a prescription for every chalk mixture they prescribe. They are in the habit of saying, "Go and get that renewed." The physician would consider it a hardship to have to write that prescription over again, while, if the pharmacist should be asked to renew a prescription of nux vomica, or strychnia, he would be wrong in repeating that prescription every time the patient should come and present the package with the number on it, and want it renewed. It is a thing that cannot be laid down by law. It must depend upon the education of the pharmacist, who must be educated to have such judgment as to be able to decide these minor points. No rule can be established for refusing or accepting these applications. The results complained of here doubtless arise in a great measure from the fact that prescriptions are largely used by others than those for whose benefit they were given. A physician gives a prescription to a patient for the gonorrhœa. He is cured, and he passes that prescription round indefinitely for the cure of the gonorrhœa. I mention these instances to show that no rule can be adopted. It is a matter we ought to take in the temper in which it is offered to us—in a good temper, and reply to it in a good temper. I think it can be best done by having a resolution drawn up by a committee, and our discussion will appear as a matter of reference.

DR. HOFFMANN.—In Germany all these matters are regulated by law. There, the labels are tied on to the bottles, instead of being pasted. All those medicines which, like narcotics, require great care when dispensed or administered, are not allowed to be repeated unless the physician writes upon the back of the label, "To be repeated," with the date and name; then there can be no mistake on the part of the physician or apothecary. An important matter should not be overlooked, namely, the doses of the different articles. The German Pharmacopœias contain tables with the single and daily doses of the more important articles for different ages; that is a good standard for the pharmacist, in case of doubt.

DR. EDWARDS.—We are not only interested as pharmacists, but we happen to be members of the public, and sometimes, in that capacity, we feel where the shoe pinches. On one occasion a physician, who was attending my child, wrote a prescription, and sent it to his own druggist to be made up, although I was in business as a dispensing chemist. Thereby, he was exercising his privileges as a physician and protecting the interest of the pharmaceutical chemist to whom he sent; but the consequence was that next morning I dismissed him—paid him his bill and told him not to call again. So there is a point where the public will resist, and in consulting our interest and the medical interest, it is a question whether the public will agree to this. If you engage a physician, and he tells you, "Now, I give you this prescription, but I would recommend not to have it repeated without my advice again," that patient takes the sin upon his own head, if he acts contrary to the advice of the physician, and has that prescription made up again. If he chooses to do so, I don't know that any law can hinder him. I think he has a right to set the opinion of his physician at defiance, if he happens to know that a medicine is doing him good, and wants to have it repeated without paying another fee. The great question is to have everything open and above board, and the public should be taken into our confidence, and know what the transaction is between the physician and the apothecary. The patient understands he has a right to use it again, and the physician does not say, "You shall not have this made up again," but he goes to the druggist and says, "I want to get a fee for using that prescription;" if he did the former, as one of the public, I should protest, and say, "No, I will choose another physician." If the public were informed of their position in respect to this, I think the consequence would be to drive them into the use of quack remedies; they will choose their own physic, rather than their own physician, and we should be getting into much greater error than we now have.

MR. BRINGHURST.—Our own practice in this matter is to renew a prescription for a patient when the bottle or label is returned, because there is not one physician in fifty who would take the trouble to order a renewal. We take it for granted, when a bottle is brought back, it is to be

renewed by order of the physician; but if we know it is to be renewed outside of the family, we refuse to put it up. As regards the possession of the prescription, it has been discussed again and again, but I see no reason to alter the opinion I have always had, which is the same as has been generally expressed,—that it belongs to the apothecary, and is his only safeguard. He stands between the physician and the patient, and in our own establishment we frequently save errors made by the physicians, who, in writing, frequently while carrying on conversation at the same time, are very liable to make mistakes. We always keep the prescriptions for our own protection, and refuse to put them up, unless they are very simple, except with the understanding that we are to keep the prescriptions. We give them copies, because we think they are entitled to them, when they are going away,—I think that is the general practice,—but we never give the prescription back. In regard to the understanding between physicians and druggists, by which the former are to receive a portion of the profits of their prescriptions, we have always resolved, and have held to that resolution, that when we can't obtain physicians' prescriptions, and do a drug business in a legitimate way, with the only inducement of merit in the composition of our medicines, and in being up to the times in having new preparations of a reliable character, and reliable drugs and medicines to dispense,—when we can't get along in that way, without paying physicians for their patronage, we will quit the business.

Mr. Eberle.—We are now discussing who shall retain the prescription, when the question is whether it shall be renewed or not. The communication we received intends to convey to us that the physician is not receiving adequate pay, if these prescriptions are renewed without his order. If we employ a carpenter one day, we pay him for one day; we can't get two days' work from him, unless we pay him for two. If a patient goes on using a medicine day after day, he is getting the benefit of the prescription, while the doctor only gets one fee. I think they are right, in a great measure. I think it could be adjusted by having a label with the date, saying that it shall be renewed such and such dates. That will save the trouble of having the patient going to the physician, who can tell the patient that it is to be renewed. In the Dispensaries no medicine is renewed without the order of the physician. The patients don't consider it too much to have to go to the physician; they are willing to have his advice, and ask questions that they don't ask the first time they went; and when it comes to the dispensing chemist, who has a contract for this work, he merely receives an order to renew such and such a number.

Dr. Squibb.—In my opinion, a prescription may be renewed to the same person as long as it is necessary, upon the same fee. A physician is called upon to prescribe a tonic. He prescribes a four-ounce mixture. If his patient receives benefit, he is entitled upon that advice of the physician to have that prescription repeated as long as that benefit

accrues, unless the physician fulfils his duty by telling that patient how long to take that prescription. If the physician tells the patient, "you are going to take a tonic that may benefit you for a month or two, but you should not continue it," he will have completed his whole duty in prescribing the time during which that prescription is to be taken. It may be renewed until the time is out, without any further application to the physician. He has been paid for the benefit to accrue from that prescription, and if it does not agree with the patient he is to go for another prescription, and it is to be modified. If there be a rule which can apply to the repetition of prescriptions, it is, that it should not be repeated to a different person. That will cover the ground, or come as near to covering it as one rule will; but if the prescription is renewed to the same patient at different attacks, or to different patients, it is morally wrong.

MR. STEARNS.—I protest against our judging of such things. It is not the province of the pharmacist to judge what the benefit is. I also protest against the idea that physicians want to get a second fee. We want to answer this resolution in a like spirit, not calling them ignorant, or avaricious, or wanting any collusion with the apothecary.

MR. ELLIS.—The discussion has taken a pretty wide range. It is a subject of a great deal of interest—of special interest to the pharmacist, and we have heard views expressed here this afternoon from the different parts of our country. I like the suggestion, without referring in detail to what has passed, which has been very ably discussed, made by the President, of referring this subject to a committee, with a view of having a courteous expression of the views of this convention, in relation to this subject, and to answer these gentlemen who have addressed us. I think it would come with special authority from the National Association. We have had a great many points alluded to this afternoon, that makes it of special interest to the gentlemen who are here assembled.

Mr. Chas. Ellis moved that a committee of three be appointed to draft resolutions in answer to the communication of the East River Medical Association, expressive of the sense of this Association.

Mr. Eberle moved to amend by making the committee consist of five, which amendment was accepted by Mr. Ellis, and the motion, thus amended, was adopted unanimously.

The President appointed the following gentlemen to serve on this committee: Frederick Stearns, of Detroit, chairman; Ferris Bringhurst, Wilmington, Del.; J. Faris Moore, Baltimore, Md.; Henry W. Lincoln, Boston, Mass.; and John H. Pope, New Orleans, La.

The suggestion of the retired President to appoint a committee

to collect formulas for unofficinal preparations, to be published soon after the appearance of the new Pharmacopœia, was brought forward by the Business Committee. It was stated that the suggestion refers to such preparations which are likely to become standard.

PROF. MOORE.—The Maryland College of Pharmacy published a book of formulas, though it has not answered the purpose of doing away with private remedies. There are some remedies, the use of which has become so common with us that they are kept in quantities in our stores. One of them, published in one of our Proceedings, is compound charcoal powder. Another, known as chlorate mixture, consists of one part chlorate of potassa to two parts bi-carbonate of soda, and is prescribed under that name by physicians. During last summer copies of a prescription having been taken to different springs, I had by mail four or five inquiries regarding this composition. I sent it in all cases. I have received prescriptions, from Philadelphia and New York, for certain articles that I knew nothing about, and I have been compelled to send to a distance for them.

MR. MAISCH.—There is another view in which we must look at this proposition. For some unofficinal medicines quite a number of formulas, varying to a considerable extent, are in use in different sections of the country. By collecting them, and giving the best one the sanction of the Association, it would tend to a uniformity of practice in the preparation of these medicines. As the case now stands, if a prescription for elixir of valerianate of ammonia, for instance, is put up in different cities, it may be a different preparation.

THE PRESIDENT.—If you print a formula that is in use in Philadelphia, it might not answer the purpose of the prescription in the place it might go to. The formula for this elixir which is used in Baltimore is so totally different from ours, that, if adopted by the Association, it would not be the thing the doctors want in Philadelphia.

MR. MAISCH.—I am dispensing that article.

MR. MOORE.—I think he would get a preparation that had very little valerianate of ammonia in it.

DR. SQUIBB.—It is to obviate these difficulties that the President suggests this committee. If a committee had been in existence when elixir of valerianate of ammonia was first used, it is probable that the formula of the Society would have been adopted, here and in Baltimore.

MR. MAISCH.—Mr. Milhau told me that was one of the reasons for his suggestion.

DR. SQUIBB.—The Business Committee will move that such a committee be appointed, to consist of three members.

THE PRESIDENT.—Our old committees used to be one from each place.

DR. SQUIBB.—When committees are spread abroad, they cannot, without great labor, exchange ideas. My opinion is that our committees are all committees of one at last, and we have a report made by the chairman; if he

consults the other members of the committee, it is at great labor; therefore, as a general rule, he does not incorporate their ideas with his own, and it becomes a one man committee at last. The older I grow, the more I get in favor of such committees, the others being simply his supporters. They may criticise his report, and he may avail himself of their criticisms, if he chooses; otherwise it is best, perhaps, that the responsibility should devolve upon one person.

It has been suggested that perhaps some other publication than that of the Proceedings would be well, that might reach medical men and have a wider circulation than our Proceedings. The publication by this Association of formulas for unofficinal preparations might have a wider field through the Journal of Pharmacy, or through any other channel that might be deemed advisable.

The motion of the Business Committee, to appoint a committee of three on unofficinal formulas, was adopted. The President announced that he would appoint the committee to-morrow.

The recommendation of the former President to appoint a committee on the tariff was laid before the Association by Dr. Squibb, on behalf of the Business Committee, who, however, opposed it, considering such a committee useless.

MR. GELLATLY.—Does Dr. Squibb mean that there is no probability that the tariff will be reduced by Congress within the year to come?

DR. SQUIBB.—No; but that this Association could not be of any use, more than it can be at the present time, by a committee. The resolution of last year offers this Association to the government, if they choose to call upon it; and to appoint a committee of this kind to take the matter into consideration, and apply to Congress in regard to the tariff, would be rather useless, to say the least, I think. In the first place, the committee would have to decide upon whether it was a free trade committee or not,—whether it wanted the tariff done away with entirely, or whether it wanted a tariff for revenue or protection; and it would be mixing this Association up with Congressional matters in an injudicious way, in my mind, at the present time. There may be a time coming when this Association may do something in regard to this onerous tariff we now have, in getting it modified. Any modification would be an improvement on the present tariff, but the tone and temper of Congress at the present time, and the influences that are brought to bear upon it, are such that I think this Association would mistake its true object and its true interest, if it should attempt to interfere in the matter at the present time.

MR. GELLATLY.—One great difficulty we have in regard to our tariffs on drugs, arises from the fact that they have been made by men who understand little upon the matter. It seems to me it would be desirable, when the question comes up in Congress, if there could be somebody to represent this Society, and offer advice, with the view of having the tariff modified. I presume it would be almost impossible to get the Association to come to a unanimous conclusion in reference to the principles upon which the tariff should be modified, but I think we ought to be represented before Congress in some way.

MR. ROBBINS.—I think Mr. Gellatly is perfectly right; your influence would be good. But I don't believe in distributing things too much; I should leave this matter with the Committee on the Drug Market. It appears to me that the Pharmacy Committee represents the scientific part of this body,—the investigating part; the Committee on the Drug Market appears to me to be a very important Committee, and one that should represent the commercial part. I don't believe that we can do much. I saw in Washington a great many things I would not care to talk about; there is the intensest jealousy of everything that approaches free trade. When a man goes there, there is somebody watching him every little step he takes. I wrote a paper on the tariff, and brought it before the New York people. People were astonished; they had been ignorant on that subject. Before the free trade league I made the assertion that the duties on drugs were twenty per cent. on the average; Delmar's state papers show they are forty. These are positive, reliable, unquestionable facts. I think if you want the duties reduced,—if that is the judgment of this body,—you can give us strength; every little helps, you know. The trouble has been heretofore, with Mr. Gellatly and myself, on the question that people have said, "You have got an axe to grind." There are a great many axes being ground, and there may be a time when we can put our axes on the wheel. We have always heard people say that Philadelphia manages the tariff,—that Philadelphia has Washington in its hand. During the war, if a man had five hundred cases of liquors on hand, he would get the duty put up, and put the money in his pocket. Congress wanted money, and it was ready to take money wherever it could find it, and anybody could get the duties put where he wanted them. This led us gradually into these things. You have been sitting in your shops, and there has been no influence exerted to change them. It appears to me that the Committee on the Drug Market is the proper Committee to take hold of the tariff.

MR. PROCTER.—Is not the tariff to pay the interest on the government debt?

MR. ROBBINS.—Yes, sir.

MR. PROCTER.—Then let us pay it.

MR. ROBBINS.—I have a great many facts in my possession I would like to lay before the Association. Many people told me that the public sentiment was against me. "No matter about that," said I; "I'll speak for myself." In the pursuit of the various information connected with this subject, I took up the medicine part of the drug business, and I ascertained facts I didn't like to put into that report. Why is it that this city of Philadelphia is so prominent in the trade to-day? The shutting up of some professions to the Quaker sect, in the clergy, in the law, and other professions, have carried into *this* business a class of men that exist no where else. If you put Daniel Webster at the hod, the employment of the hod-carrier would be noble, and if I had a boy, there is no business I would put him in so quick as that of the apothecary. We sit at our desks and feel the pulse of the nation. It is Mr. Gellatly's and my business. We know how every part of the country stands on the books of the Mercantile Agency, and the interior druggists are ahead of all others. When I first came to the city of New York, we sold to retail druggists from January to January, and then we settled three, four or five months afterwards. The credits

were longer then. I have seen the gradual expansion of credits in the country, and the gradual contraction in the city. Why is it? The oldest philosopher said that figures never lie, and one meant God. The curtailment of the province of the druggist in the city, the narrowing him down, is a fact. I want to see this pursuit lifted up. The whole interior of our country has been deficient in attention to pharmacy; they lack education. The danger in the cities is, there is neither room nor scope enough to induce men of the right character to go into it. In regard to this foreign trade, we want it, and we ought to have it. New York is a frontier city, and we have got a great deal more capacity for it than they have in Europe. We do not want to be shut in here, shut out from the rest of the world in the way we are now. How many medicinal drugs do you suppose are imported? After taking all the statistics I could get, I only got a million and a half of dollars. They were mainly medicinal, drawing the line where I could in the arts, and in medicine, putting, for instance, iodine in the medicinals. As near as I can make a conclusion, the consumption of imported medicinal drugs, for every man, woman and child in this country, is about five cents in gold. Of course duties and exchange are to be added, which would make it ten cents. The English government found, years ago, that it did not get revenue enough from the drugs to pay for collection. One-third of all the articles in our tariff are drugs, and the government does not get paid for the collection of the duties thereon. You are tariff men, but we want free trade in our business. When I take up a foreign tariff, I see a line of policy right through; not so in our tariff. After the 30th of June, the close of the fiscal year, I took up the American tariff, and undertook to classify it, and that is where I began to get rocks in my way; Beelzebub himself could not do it. I saw where Mr. Brewer had missed it the year before. Before the New York Free Trade League I delivered a speech on this subject, and you know the result. The New York "Post" wrote three articles about it. Those articles carried me to Washington, and there I got these facts. A man of my views going on there now will be watched like a cat. If the Pharmaceutical Association wants the duties on drugs taken off, it can help us; but, whether it joins us or not, we will carry the movement forward.

Dr. Squibb.—I like the suggestion to refer this matter to the Committee on the Drug Market, and I think if they need an expression of the opinion of this Association, it is well enough to give it to them, which ever way it may be. We know that the present tariff is injurious to the best interests of the drug trade, but Congress is in no tone to meddle with the tariff now. We saw abundant proof of that during the last session of Congress.. I have had something to do with the drug tariff, in connection with Mr. Wells, who asked me to aid him in an attempt to classify and arrange, and, if possible, to harmonize the different parts of the drug tariff with each other. I aided him a good deal; was taken before the Committee on Ways and Means, and gave a good deal of testimony there; all the testimony I had to give was in the direction of the abatement of the tariff. I gave some, what I considered, important illustrations of how the tariff worked, and how it wasn't a tariff for revenue after all; that protection was the grand scheme, and that protection and revenue were two as distinct things as Mr. Robbins makes them. The illustration I used on

cross-examination was this: I took sal soda as an example. I said there were then eleven companies in the United States that were making sal soda, and that, according to my memory, about four-fifths of the sal soda that was used in the country came in by import, and that this was to protect the production of the other fifth. The immense duty upon sal soda is for the protection of the small interest here; but this was so large as to influence Congress to keep the tariff up. Another illustration was the one Mr. Robbins brought up, of castor-oil. I collected not over four million dollars invested in the castor-oil business. I showed it cost about eighty cents laid down here from the East Indies, and that a one dollar duty was a disproportionate duty, inasmuch as it was to protect only four million dollars invested in that business. Everybody was to be taxed on every dose of castor-oil to support four million dollars invested in the manufacture of castor-oil; and it was shown to that committee, at that time, that the difference in the cost of transportation from the place where the bean was grown and collected—between the oil and the seed—paid for expressing the seed on the spot where it was grown. My testimony, for eleven hours, had just as much effect on that committee as so much water trickling out of a spout. They admitted it as true, that the duties collected upon the drug list of the tariff did not pay for the collection.

The Business Committee moved, and it was carried, that the President's suggestions and recommendations in regard to the tariff be referred to the Committee on the Drug Market.

On motion of the Business Committee it was resolved, that in the opinion of this Association the duties on drugs ought to be reduced.

Mr. Gellatly, Chairman, presented the following report:

The Committee to whom was referred that portion of the report on the drug market relating to the Law for the Examination of Drugs, respectfully report the following resolution:

Resolved, That in accepting the valuable and interesting report of the Committee on the Drug Market, this Association does not endorse that portion of the report referring to the inutility of the law requiring the examination of foreign drugs before entry at the Custom Houses, (a law intimately connected with the origin of this body), believing that, however imperfect the law may be, its comparative fruitlessness has mainly arisen from the inability and unfitness of the agents appointed to execute its provisions.

Signed, W. A. Gellatly,
William Procter, Jr.

Mr. Gellatly.—Lest it may seem that this should cast any censure upon Mr. Robbins, I think it would be highly proper that the Association should give some expression in reference to the value of his labors as their Chairman of the Committee on the Drug Market, and if it is in accordance with the custom of the Association, I would like to submit this resolution.

PROF. MOORE.—The usual custom has been to accept the report, and, if it is worthy of publication, to refer it to the Publication Committee. The Association does not endorse the views of the writer, and I think, as Chairman of the Committee, he is entitled to the benefit of his own views. For that reason I objected, this morning, to compelling him to alter his report. He brings forward his own views; if the Association adopted them, they would be our views. If we adopt the alteration, we make it our view. The original paper should have been received, and published as his report. He is responsible for it, and must father his pet, and not the Association. Mr. Robbins' report is an able one, and I desire to see it published; but we don't adopt every report that is made here. It is understood by all the members that this is his opinion, and not ours.

DR. SQUIBB.—I want to ask whether the report stands as read first, or as modified by the Chairman afterwards. That is a question I want to raise. It doesn't make much difference which way it stands, but we should know which way it is to stand. With these resolutions it is all right, either way.

PROF. PROCTER.—If that resolution is printed, the report ought to stand as it was originally written. The erasure was an attempt on the part of the writer of the report to meet the views of the Association.

PROF. MOORE.—Most undoubtedly, if we are going to repudiate his views, we ought to let him have the benefit of them, whatever they are.

THE PRESIDENT.—However we may understand each other in a matter of this kind, about this report, these published Proceedings go into the hands of many persons that are unfamiliar with our practice, and who might consider that the Association, having put upon record the report of this Committee, approved it. This sets us right, if adopted.

The resolution offered by the Committee was adopted.

The Business Committee, to carry out the suggestion of the retired President in regard to the appointment of delegates to the International Congress of pharmaceutists to be held next year, moved that the President and Executive Committee of this Association have authority to appoint one or more delegates to the next International Congress of Pharmaceutists, if such, in their view, should be deemed desirable, during the interval of this and our next meeting.

The motion was carried.

In regard to the suggestion of President Milhau to instruct the Permanent Committee on the Pharmacopœia in relation to the adoption of decimal weights or parts in the next Pharmacopœia, Dr. Squibb recommended that such instruction be not given, because this Association cannot enter into the deliberations of the Convention revising the Pharmacopœia. No action was taken thereon by the Association.

On motion, the Association adjourned until 8 o'clock this evening, for the reading of scientific papers.

Fourth Session.— Wednesday Evening, Sept. 9th.

The meeting was called to order by President Parrish at 8 o'clock, P.M.

Mr. Jos. P. Remington, of Brooklyn, N. Y., read a paper in answer to Query 1st, on the quality, &c., of commercial hydrargyrum cum creta, illustrated by four specimens of the article made by different processes. The paper was referred to the Executive Committee for publication.

Mr. Bullock.—I would like to make one or two remarks on that paper, as some years ago my attention was turned to a kindred subject by a query that was assigned to me upon the preparation of blue mass. In the course of those experiments, I found that mercury was prevented from undergoing oxidation, and in the form of oxide was immediately reduced to the metallic state by the presence of a minute trace of tannin, and it is to the presence of tannin that the integrity of blue mass is, in a great measure, owing. The action of tannin upon oxide of mercury took place rapidly in the cold. It reduces the black oxide within a few minutes; a very small amount of heat greatly assists the reduction. I found, also, that the presence of honey had very little effect, compared with tannin, in reducing the oxide which was formed. In the course of the examination I found, which I afterwards noticed was sustained by other authorities, that dilute hydrochloric acid, of a specific gravity of 1·120, had no action on metallic mercury, when so finely divided that the globules could not be seen by the naked eye. Hydrochloric acid afforded one of the best means of separating any oxides from the metallic mercury. We all know that hydrargyrum cum creta has become so uncertain an article, that it has lost favor with medical practitioners, and if any way could be devised whereby a certain amount of tannin, or conserve of roses, could be introduced in it, it would be a great assistance in preserving the integrity of the preparation.

Dr. Squibb.—What objection has Mr. Bullock to the present practiced plan, of shaking it with honey?

Mr. Bullock.—None, whatever. I regard it as the best method of preparation; but when combined with the chalk and the honey removed, is it not liable to oxidation? I have had specimens presented to me where it was thought, from the violence of the symptoms, that mistakes had been made, and corrosive sublimate had been given; and examination under the microscope showed the red crystals of mercuric oxide scattered through it.

Dr. Squibb.—Was that made by honey?

Mr. Bullock.—By some of our best manufacturers. The only objection I have to honey is, that in the course of my experiments I found very little dispo-

sition on the part of honey to reduce the oxide of mercury after it has once formed. The honey will be protective, during the operation, against the formation of oxide, but the oxidation will take place after the honey is washed out.

DR. SQUIBB.—The honey is not washed out. The mixture is simply drained, the water being drained off. There is supposed to be enough left to protect the globules, and this supposition is simply sustained by eleven months' experience, and I have no more. I have made hydrargyrum cum creta by that process for several years, and never had any direct testimony as to violent symptoms being produced by any mercury with chalk, so made. As to whether this is a protection or not, it is useless to argue upon a point of this kind against facts. Facts are stubborn things, and we ought to rely upon them rather than upon any theory or arguments.

MR. REMINGTON.—I submitted these samples to a very searching test. The sample that I exposed in paper was on the window-ledge, wrapped in paper, but exposed to the effect of the sun, moisture and rain. The other was kept in a bottle in a closet; and when I examined them, at the expiration of eleven months, the two samples differed very little. There was no appreciable difference in the quantity of mercury or oxide of mercury contained in them, and no difference whatever in color.

Mr. Remington also read a paper by Mr. John A. Dunn, of Brooklyn, N. Y., on the best process for making hydriodic acid, in answer to Query 2d, which was accepted and referred.

MR. PROCTER inquired whether the protective power of the hyposulphite extends any length of time?

MR. REMINGTON.—It extended for three months in one of his experiments. From want of time he could not pursue the subject any further, to see how long it would last.

MR. MAISCH.—I should suppose that the substitution of sulphite for the hyposulphite of soda would be better, since adding the hyposulphite to so strong an acid as hydriodic is, sulphur must be liberated. It can be only the sulphurous acid that has any preservative influence.

MR. REMINGTON.—The quantity used is extremely small: one-third of a grain in a fluidounce.

MR. MAISCH.—Why not sulphite, instead of hyposulphite?

MR. REMINGTON.—The experiments were not directed in that way.

MR. MAISCH.—There must be a slight deposit of sulphur.

DR. SQUIBB.—The reason the hyposulphite was selected by me for the restoring of iodide of iron is, it is a much more definite salt, and more easily obtained. The sulphite is very liable to change, and so small a quantity is required that the sulphur is held in solution. If iodine is deposited in this solution, then the addition of hyposulphite sufficient to re-dissolve that iodine will separate the sulphur, but where it is used in so small a quantity, it does not interfere with the apparent transparency of the liquid. If it was put under a microscope particles might be seen, but they are not when it is used merely as

a protection. Then there is no separation, because up to that time no change has taken place, and no iodine is free, and the hyposulphite of soda only remains there as a protective, and not as a correcting agent, and therefore is not decomposed. The presence of one-third of a grain of hyposulphite of soda undecomposed, in any solution, cannot be a medicinal objection.

Mr. Maisch.—I can see the truth of what Dr. Squibb says, if the hyposulphite is added to a solution of iodide of iron; but when it is added to hydriodic acid —that is the point I want to get at—it must be decomposed.

Mr. Remington.—There is no apparent interruption of the clearness in a solution of hydriodic acid. The syrup of iodide of iron is always decomposed, if we may trust our senses; but when a dark specimen of this syrup is treated with hyposulphite of soda, there is a substance liberated which I always supposed to be sulphur.

When the fourth query, relating to the sources and commercial history of Mexican Sarsaparilla, was called for, Prof. Bedford stated that Mr. Colby was not prepared to answer it, and desired to be relieved from its further investigation.

In answer to Query 8th, on the Crystalline Deposit in Fluid Extract of Cloves, Mr. F. Llewellyn, of Louisville, had prepared an essay, which was read by the Secretary, and, on motion, accepted and referred.

Mr. Procter.—The origin of that question was, that the fluid extract of cloves, after having been kept two or three years, deposited one third of its bulk in crystallized matter, and the question arose under those circumstances as to whether it was the result of oxidation or whether it had existed before and was merely deposited. In the experiment related by Mr. Llewellyn, the deposit appears to have occurred almost immediately after making it.

Query 10th, referring to the medicinal value of those principles of Buchu which are soluble in water, but insoluble in alcohol, being called up, Mr. Thos. A. Lancaster, of Philadelphia, stated that he had satisfied himself that this extractive matter possesses some therapeutic value, and asked for a continuance of the subject to complete his experiments; which request was granted.

Query 6th on the substitution of chicory for taraxacum, was called up.

Mr. Markoe —I was not very successful in getting information in regard to the statistics of that matter. The relative consumption of chicory against taraxacum in the Boston Market, is 10,000 lbs. of chicory to 2000 of taraxacum. A large portion of the chicory is purchased by pharmacists, and finds a ready market in the form of fluid extract of taraxacum, many of the effects of which may be credited to chicory.

MR. PROCTER.—That ought to be put in writing. I would like to see Mr. Markoe's name to that.

MR. MAISCH.—I can state that a considerable quantity of dry taraxacum in our commerce contains a certain portion of chicory. The two roots can be easily distinguished, notwithstanding they are very similar. I have never gone to the trouble of ascertaining to what percentage it is contained therein.

Mr. BRINGHURST.—Is chicory used for medicine? There is a large consumption in coffee.

MR. MARKOE.—The figures I gave represent the entire consumption in Boston for medicinal purposes and coffee. The cultivation of taraxacum in New England is pretty nearly given up. Chicory is so much easier to cultivate, and the yield is so much better, that it pays very much better. In New England it is only the cultivated taraxacum that will pay for drying.

THE PRESIDENT.—From what I know of the consumption of chicory in the manufacture of coffee substitutes, I should think we were hardly justified in concluding that it is mostly used as a substitute for taraxacum. Large quantities have been brought from New England, where they are not very particular about what they use, and sold in the form of dandelion coffee.

Mr. MARKOE.—The largest quantity of dandelion coffee emanates from Philadelphia; at least, it is distributed here.

THE PRESIDENT.—It is put up in New England with a Philadelphia label on it to give it a respectable appearance.

MR. EBERLE.—Mr. Brown believed he got ahead of the Yankees, because in some towns in New England they buy the coffee with his label on it.

MR. PROCTER.—I was under the impression that Brown used sweet-potatoes.

Dr. SQUIBB.—It is reported of a clergyman of Brookline, that he said in an after-dinner speech before the New England Society, that it was reported of the people of his state that they made very good wooden hams and nutmegs. He said they would be sure to make good ones, and he would rather belong to the place that made them, than those that bought them.

The following queries were discontinued, it being understood that no answers had been prepared by the gentlemen who had accepted them last year:

Query 13th.—On Competition as a Means for Pharmaceutical Progress, accepted by Mr. Samuel M. Colcord, of Boston.

Query 14th.—On the adoption of a Universal Pharmacopœia, accepted by Mr. Thomas Doliber, of Boston.

Query 15th.—On the introduction of the Metrical System of Weights and Measures into the United States, accepted by Mr. J. F. Babcock, of Boston.

Query 16th.—How far is Pharmacy entitled to rank as a

Profession, and what is its true position among the industrial pursuits? This query had been left for a general acceptance; but not being answered, the President called upon Mr. Robbins to express his opinion.

MR. ROBBINS.—I think the words pharmacy and pharmaceutist, or pharmacist, have undoubtedly been accepted as relating to the profession solely. The apothecary has been considered the practical man. My objection to the word "apothecary," is, that it originally did not apply to our business. Everybody knows that. The keeper of any small store was an apothecary. It comes from two Greek words, meaning "to deposit" "to lay aside." That is the root of the term. Laying aside the word "apothecary," pharmacy is an art as well as a science. If we retain the word "apothecary," pharmacy is the science, and apothecary is the art. I propose in my paper to lay aside the word "apothecary," and employ the word "pharmacist"—to employ pharmacy for both the knowledge and the art of compatible combination. The other day I met a friend with whom I have always been on the best of terms, and we exchanged price-currents. On the back of his circular I saw the words "for druggists and apothecaries." What is an apothecary in our country but a druggist? He is not an apothecary as the term is understood in England. In the recent law passed in regard to poison, the concluding article says "nothing in this act shall relate to apothecaries." The apothecaries constitute a special organization in Great Britain, and no other man can put that word over his door without a heavy penalty. Here, we sometimes get a man's card with a long string of titles. He is a druggist, an apothecary, a chemist, a pharmacist, and I don't know what all. I like clear, precise views. I like a handle to things—something I can take hold of; and in our business we must understand terms. Are you prepared to drop the "apothecary" in the United States, considering that it is used in England to-day to designate not only a pharmacist, a chemist, but a practitioner of medicine? Pharmacy must include the science and the art of our business, preparation and combination as well as preservation. The classifications of the materials used in our business is a difficult matter. Gehe has done the best at it of any body I know; for instance, he puts powders among pharmaceutical preparations; I never saw it in any other list.

DR. EDWARDS.—Unquestionably the apothecary was originally a kind of dresser to the medical practitioner. The medical man was called in, but all the minor operations were performed by the apothecary, and the medicines were dispensed by him. But the apothecary grew out of that. They threw off their allegiance to the physician, and they established themselves into a recognized medical body; and now, in England, they are recognized as a class of the medical body, and recent legislation, within the last five or six years, or rather more, under the present Medical Council, has placed them in the possession of one of the examining boards. It is therefore optional whether a man shall be examined and licensed by the apothecaries or by some other bodies, to qualify him to pass through the whole curriculum which entitles him to practice. The word "apothecary" is now dropped altogether, and,

as a separate class of dispensers, the apothecaries are out of date. When the apothecaries became medical practitioners, the physicians no longer had confidence in them. They required another class, which the public had provided for them in the way of drug-shop keepers, who then called themselves chemists and druggists, and who were willing, upon the encouragement afforded by the English physicians, to pay more attention to the dispensing of medicines; and there has been, therefore, a disposition to separate into two classes, the medical practitioners or physicians on the one hand, and the dispensing chemists, or, according to the term now used, the pharmaceutists on the other. When the subject of pharmaceutical education was discussed in England, and brought before the Medical Council, they found a very great difficulty in dealing with this class. It was repeatedly under discussion as to what they should do in regard to the dispensing of medicines, and they came to the conclusion that they would rather have the education and licensing in the hands of the bodies themselves. The Pharmaceutical Society having established a certain prestige, the Medical Council were willing to leave the education and the licensing in the hands of the pharmaceutists of that country, and hence, by this very circumstance, the pharmaceutists have obtained a separate existence. In regard to the question whether this should be called a profession or a trade, I think that the proper position would scarcely be to include both, but rather take the view that it is an art—that pharmacy is an art—but still, to teach that art would constitute a professorship, just as to teach the art of drawing would constitute a man a professor of drawing, or to teach the art of painting, constitute a man a professor of painting. It can scarcely be said to be a profession, because a person exercising it does not receive compensation for his brain, but he puts the price of his brains upon his goods, just as the artist not only gives idea to his picture, but he performs the work which he puts upon the canvas. So the pharmaceutist combines his knowledge and practical skill, and these two constitute an art rather than a profession.

The President.—I want to make a few remarks. I can't tell you how much I have been wakened by our friend from New York. I believe in definitions. Who are we? What are we? Why, according to some people's conceptions, we are men that stand behind a counter, and own a pestle and mortar, and a graduated glass, and a few simples and mixed compounds, and that deal and trade over a counter. Is this our conception of what we might be, and ought to be? I like the definition—"the science and the art of preservation, preparation and combination." Now, we are not quacks if we go before the community and teach them the arts, teach them how to preserve their meats, for instance; it is one of the practical applications of chemistry. It is exactly in our line—to teach them how to get at the wants of their households and of their shops. To a limited extent, chemistry, applied, is pharmacy. All the innumerable wants of society, all these details, all these minor considerations in domestic economy, belong to us. They are our profession, for we are a profession; they are our art, for we practice an art; but, I ask, is not a profession an art in many cases? We speak of the physician as a professional man; but does he not practice the art of healing? Profession seems, with many

people, to have a sort of restricted sense, which I don't care to assume. I rather like Dr. Edwards' idea, that it is an art. We have a profession, if you please, but we have an art, too. It is a wider term and has a broader meaning, and is better adapted to the views of the American people. Now for these terms "pharmacist," &c, was it not I that read the first paper about it? I shall have to claim that invention. You will find it in the Proceedings two years ago at Detroit—a paper proposing the general use of the term "pharmacist."

DR. SQUIBB.—You can find it in Worcester's dictionary before that.

THE PRESIDENT.—It has not been long in use.

MR. MARKOE.—Webster has had it for many years.

THE PRESIDENT.—It is none the less an improvement from having been in the Dictionary, where I, for one, overlooked it. We want an American word for the practitioner of pharmacy. We have among us the consulting chemist, the druggist, the importer, and the cultivator of medical plants. We want to build this Association up, and put it between the public that use, and the raw material as it is produced and gathered, or cultivated, as the case may be; but it will not do to apply the word "pharmacéutist" in a different sense from "pharmacist." We have been used to the former, and if we take "pharmacist" we must take it is a substitute for it; there is a word adapted to the professional man who makes himself master of this subject, teaches it, and writes about it: that is "pharmacologist." When I was Chairman of the Committee on Queries I asked one of our members to give me a query. Said he, "ask the question, 'how shall we ever elevate the young men in the drug stores from their degradation—working for the wages of a house-carpenter, or a blacksmith, 16 to 18 hours a day, and subject to being called up in the night?' There is a practical query for you." How will you get these young men, who ought to be young men of a first-rate education? We have an absolute rule in our College of Pharmacy, that an apothecary must not take a young man older than 17 years of age, so that, after four years of apprenticeship, he may be graduated—so that he may begin at the rudiments. There is a radical defect in the system. We shut out young men of talent, enterprise and education because we assume that, to be an apothecary, you must begin with the drudgery, and gradually accumulate, by a long course of practice, what every smart young man would get, under proper training, in a very short time—in a few months. I will tell you my candid opinion—my candid belief, founded on twenty year's experience—that young men are better fitted to come into our stores out of a good, first-rate institution of learning, where their minds have been thoroughly cultivated and trained a year, than they are picked up from the common school, with their crude, cramming system of education, and taught four years the drudgery of the shop. Then, when they have graduated, what are they fit for? They are not intelligent men like the young man that has had an education. Which of us would put our sons in the position of being taken from the lower class in a common school, and placed in the store of an apothecaray? No; let us begin at the beginning with ourselves—begin with the young men we take in our stores, establish a precedent, make the principle obvious to every one that education is the first requsite to success in

life. The very first thing after good moral principle in a young man is a liberal, thorough education. We want a better education among pharmacists. You may say, "Don't you give them an education in a college of pharmacy?" Yes; but if a young man comes to us with an untrained mind, he cannot achieve great success. I have heard the remark made recently by one of our leading members—I was speaking of laboratory instruction—how desirable it would be, and so on; "Yes," said he, "that is all very well, but I don't think it is practical without a long period devoted to it?" We find that the majority of our young men, when they come to be examined, are very deficient in their examination. Why? Because they never had the right ground work. When we start to improve our profession, let us begin by insisting upon a better preliminary education, the basis not only of success in pharmaceutical education, but the basis of true success in life.

DR. EDWARDS.—Why do you want to change? The words which are used in the pharmacy act of '46 are the words "pharmaceutist," or "pharmaceutical chemist," and were used then in the sense of a person educated to the branches of this business; and when our President says that the Americans want a word to express American pharmacy, I want to ask in what respect the American pharmacy differs from the British pharmacy?

THE PRESIDENT.—The British pharmacists have two names: they are druggists and chemists, and their other name is pharmaceutical chemist.

DR. EDWARDS.—Not by Act of Parliament.

THE PRESIDENT.—They call themselves so. There are two grades under the new law.

DR. EDWARDS.—I am speaking as to the term "pharmaceutist," and whether it should be contracted to "pharmacist;" or, as has been done, "pharmist." There are some who want to use only two syllables. Whether I look upon pharmaceutist, as it is by law, or the last invention, or abbreviation, we don't get the term pharmacist. The word "pharmaceutist" is descriptive of the persons who were engaged in establishing the pharmacy act. Their society is the Pharmaceutical Society, and while there has been a distinction between the names of a member of the Pharmaceutical Society, and what have been, in the correspondence connected with the subject, called "outsiders," (that is, chemists and druggists,) still, since there has been a system of registry, all these men have been registered as pharmaceutical chemists. If I want to be exempted from serving on a jury, I have got to say I am a pharmaceutist. If I were upon the roll as a pharmacist in Great Britain, I am not exempted from serving on juries under that title. Therefore you have a recognition of that term, which it appears is not affixed to any other term here, and therefore I ask for better reasons for changing.

MR. ROBBINS.—Language is but a symbol of ideas. With the growth and development of the mind and science, they have been continually changing the languages more or less. The English language seems to have sprung from great elements; to combine in itself the resources of the German and French. It opens the most powerful expression in the world, with the greatest adaptation to scientific purposes. Of course, whenever a man is in earnest he speaks

Saxon,—good old Saxon,—hardly a Latin word in it. When we want to define material substances, we fall back on the Latin. When we want to express the dearest emotions of our natures, we go back into the Norman. I say "oil of castor bean" instead of "castor-oil." Now, "pharmacist" is a better word than "pharmaceutist." I love Great Britain, but I must say pharmaceutist is an awkward word, like a good many other John Bull things. I think we ought to be a little step ahead if we can. Our friend from England will see that I represent "Young America."

The Business Committee offered the following resolution, which was adopted:

Resolved, That the Permanent Secretary be directed suitably to acknowledge the obligations of the Association to the Medical Department of the University of Pennsylvania, the Penna. Academy of Fine Arts, the College of Physicians and Surgeons, the Penna. Asylum for the Blind, the Librarian of the American Philosophical Society, the Academy of Natural Sciences, and the Directors of the Sanitarium at Media; with the acceptance of their kind invitations, and the thanks of the Association.

The Business Committee likewise proposed the following:

Resolved, That it is the deliberate conviction of this Association that the present high tariff on the importation of drugs is detrimental to the interests of this Association, without yielding a corresponding revenue, if revenue at all; and that, therefore, the Committee on the Drug Market be instructed to embrace the subject of the present tariff in the report of that Committee to the next annual meeting, to the end that the influences of this Association may be wisely directed in this matter.

The resolution was adopted.

On motion, the Association adjourned to Thursday morning, September 10th, at 10 o'clock.

Fifth Session.—Thursday Morning, Sept. 10th.

The Association met at 10 o'clock, A. M., President Parrish in the chair. The reading of the minutes of the last three sessions was postponed. The report of the Committee on Queries was read, but action thereon postponed.

Dr. Squibb presented some indigenous drugs, and read some remarks thereon; the paper was accepted and referred to the Executive Committee for publication.

THE PRESIDENT.—In the proceedings of the British Pharmaceutical Conference, is a statement of the inertness, or nearly so, of all the preparations of conium. They have come to the conclusion that they are pretty nearly inert.

Dr. Squibb.—Mr. Smith, who collected these, and is present with us, collects them from the wild plant and merely preserves them with care. He has had some experience in it and very different from that of Dr. Harley. I shall send some collected by him to Dr. Harley and Mr. Hanbury, for the purpose of allowing them to ascertain whether the difference in climate is important or what makes the difference.

Mr. Maisch.—Twelve years ago Prof. Schroff, of Vienna, was led by his investigations on conium to the same conclusion that Dr. Harley arrived at last year, that the extract prepared from the juice is inert; the alcoholic extract of the leaves not much stronger; but that the alcoholic extract of the fruit is rather better and keeps better; the alkaloid contained in these preparations never exceeded a minute percentage, and the inspissated juice could be taken in large doses without any deleterious effects. His experiments were made with wild plants grown in Austria. The question is whether the fruit is much more powerful than the leaves. On the strength of the investigations of Schroff, all the preparations of conium have been expunged from the Austrian Pharmacopœia.

Dr. Squibb.—It is said that the conium plant, which is so venomous in Italy and the southern countries, is eaten as greens in Russia. If this be true, as has been said, it will account for some peculiarities that are reported. This subject will come up again in relation to a paper in answer to a query which will be presented by Mr. Close, of Brooklyn, and a discussion may then be had on the subject.

The President.—I would inquire of the Committee for the Revision of the Pharmacopœia, whether the seeds of conium were not expunged and the leaves retained.

Dr. Squibb.—They were. It was a mistake, I thought, at the time.

Mr. Procter.—I will state that this had been arranged as it should have been, but at a late hour in the revision, it was reversed—I don't remember by whose influence.

Mr. Maisch.—Dr. Squibb states in regard to podophyllum that it was evidently collected at the proper season. Does he know at what season it was collected?

Dr. Squibb.—When the leaves were falling.

Dr. Squibb read a paper in answer to Query 81, on the Contamination of Hydrochloric with Sulphuric Acid, which was accepted and referred.

Dr. Squibb likewise read a volunteer paper, entitled Note on Rhubarb, which was accompanied by various specimens of this root, some of them of superior quality and in original packages. The paper was referred for publication.

Dr. Squibb.—There are some very interesting pieces of rhubarb here. There is one that shows a superabundance of oxalate of lime. I take it for

granted that the medicinal effect of such a lump is very bad from the superabundance of oxalate of lime. The boring of the hole for drying the root always discolors that portion which is near to it. I am having a borer made, which comes immediately to a point. I have tried a specimen and find that it bores more of a bevel to the hole than the tap borer does, and you can see better into the centre of the piece. The examination of powdered rhubarb is a matter of great difficulty. I have brought specimens of these powders. When these two powders are exposed on a table to the action of light and air for two weeks, the powder of the bad or mixed rhubarb turns of a very light color; it changes its color entirely, while the good rhubarb does not change to anything like the same extent. I am in the habit of applying, when consulted upon the character of rhubarb, two tests—the taste, the impression made on the tongue and the smell. I find by experience, if you take a rhubarb that is powdered from poor, bad rhubarb, no matter how good the color, or the appearance is, when you place a portion of that on the tongue, it melts; it is mucilaginous; it feels something like slippery elm on the tongue and between the teeth; there is no grittiness, no want of solubility, but it all seems to dissolve. When you take a rhubarb ground from good root, containing oxalate of lime in its true proportion, you get grittiness. I never knew powdered rhubarb that was from good root that did not give a grittiness between the teeth and in the mouth, and a want of solubility on the tongue, and it is about one of the most exact tests I depend upon. I don't mean it to be inferred that I deem the presence of oxalate of lime as a test of the quality, because samples of rhubarb differ greatly in the proportion of it. I believe that when the root is allowed to remain in the ground a season longer than it should be, the quantity of oxalate of lime increases, while the proportion of medicinal agency disappears in its relative proportion. Therefore, although oxalate of lime is to a certain extent a test of the maturity of the rhubarb, it does not apply as a test if you take into consideration over-maturity. Of great significance in examining rhubarb is its taste and odor; both are very different in these two chests. These things, taken in conjunction, are a very good criterion of the quality of rhubarb. But, as a rule, I maintain that no man should buy powdered rhubarb. The activity of rhubarb does not depend upon the fineness of the powder. It is a fallacy to suppose that a fine powder is better than coarse powder. It is all dissolved, and if it was broken up into portions the size of millet seed it would have the same medicinal effect. I don't speak positively, but as a matter of judgment. Therefore, in this, as in many other instances I could give, the fineness of the powder is no indication whatever of the quality of the article, but rather is a removal of a landmark whereby you may judge of the quality. A substance reduced to a very fine powder is proportionally screened from examination, but if it is in coarser powder the particles may be seen, and their character criticised. To illustrate this I have put upon a slide under the microscope a little of both of these powders that have been exposed to the light, one having changed its color. That color cannot be judged of under the glass, but the character of the powder is very distinct to those that look closely. The two powders are in juxtaposition—the one appearing

very uniform, the other to have some white spots in it. These white spots were alluded to in connection with this very sample of rhubarb of which I gave a history. The seller of that rhubarb said: "I have a very powerful microscope, and have examined this rhubarb and find it is purer than any in market." Said he, "all the rhubarbs have about 25 per cent. of white specks, and this has not a bit." I maintain, that is because he don't know that those specks are white oxalate of lime, and cannot be colored to the color of rhubarb by powdering. I may take occasion to notice that little microscope. It is a cheap thing, that is very well adapted to my uses, and I think to pharmacist's uses in general. It is put up in a box, and is called the Household Microscope, and intended for popular use. The price is $5.00. If any one who wants to learn to use the microscope would buy some such instrument as that, he would find it good enough for all practical purposes. When I use the microscope I use one somewhat similar to that, not precisely like it, but this is a very far cheaper one than the one I have, and answers every purpose. It requires very little skill to get accustomed to the use of it. At any rate, a man who developes himself on a little instrument like this will be very apt to buy a better one. The maker is T. H. McAllister, son of our old McAllister, of Chestnut street. I don't want to advertise him, and he don't need it. His place of business is 49 Nassau st., New York. He is one of the sons—the other son being in partnership with the old gentleman still. This has two powers, the lowest of which is on now. The range of diameter of magnifying is 20 to 100, and that is ample. Many who buy a microscope ask, "How much will it magnify?" and if the seller can say 500 or 600, they will buy it, while in reality they don't want one over 25 to 50. That is a point all who seek to become familiar with the microscope ought to know. I once introduced a gentleman to Mr. McAllister, saying that he knew knothing about the microscope, but desired to familiarize himself with it. Said McAllister, "That is very rare. I will take some pleasure to accommodate that man. Every body that comes to me think they know everything about the microscope, and I find they know nothing about it." This little microscope serves the purpose of learning very much better than a more costly instrument.

Mr. Markoe.—The Boston optical instrument makers are making a stand microscope of 60 diameters, deemed superior to many others.

Dr. Squibb.—I believe that the best stand in the world is now made by Zentmeyer in this city. He makes the most perfect stand at present in use. He is a quiet man, and all you get out of him comes very cheerfully; but he keeps his knowledge down at the bottom of a well, and you must pump and pump before it comes, but not because he is loth to communicate. He does make a most magnificent instrument in every respect, simple and well adapted to every use to which a microscope can be placed. I merely want to give him the credit of making, if not the best, as good an instrument as any in the world.

Mr. Bullock.—The microscope to which I refer is the one which received the Society of Art's prize. That Society offered a prize, open for competition, to the manufacturer who would make the best microscope for educa-

tional purposes. The prize was awarded to Field & Son, of Birmingham. It is a simple microscope, not compound, furnished with three excellent powers, and of course gotten up cheaply. Field is under an obligation, by his engagement with the Microscopic Society, to always have these in stock, and sell them at a limited figure. The cost is about 10*s.* in Birmingham. I have been using one of these for two years, and have done a large portion of my microscopic investigations with it, having Zentmeyer's large instrument, where those powers were too low to give me the information desired.

DR. SQUIBB.—The advantages of a compound microscope are not very great for the ordinary use for pharmaceutical purposes, and a simple one would be as valuable as the compound, but a person would not learn the use of the compound microscope by using the simple, as well as by using one of these compound.

DR. PILE.—Is there any way to test rhubarb by chemical tests?

DR. SQUIBB.—I would like to talk about this matter for a good while, but I think our time is too valuable. I should like to see it put among the queries. The foolish test of aqueous extract does more harm than good. The custom house have a test which is 40 per cent. Our garden rhubarbs will yield over 40 per cent. of aqueous extract at any time, but I think great wrong is done by relying on such a test. The concluding portion of this paper offers to us a fair illustration of the utility of the drug law. I know that 25 cases of rhubarb were rejected, and I know of other similar instances. Suppose I know but two instances; that is two lots less of bad rhubarb than we would have had without the drug law. If the examiners are not critical enough, it is not the fault of the law. The fact seems to be, that when an examiner is at a loss whether to reject a certain importation or not, without his knowing it, the importer comes into his mind, and he thinks of the large house of A. A. Low & Co., and the influence of that name is a little inclined to make a man waver, without any disposition to do so, and he says, "I will send this to some expert." He has, for many years, been in the habit of sending samples to me, and I have told all the various inspectors at our port, "If you want an independent judgment don't let me know anything about the names; spread the samples out and I will write my judgment, and you may take it home." The appraisers, when they get a shipment, the value of which they don't know, send for expert testimony, and it is the place of the drug examiner to do the same thing. There are gentlemen too proud to do that. They don't like to admit that they don't know everything. To improve the drug law and to get more competent examiners, so that there may be a more definite examination, is what I have always aimed at, and shall aim at; but to condemn the drug law in the face of such a statement as that is plainly unwise.

MR. MARKOE.—In the port of Boston there was another instance—2000 lbs. of cubeb stems rejected by our examiner and burned; otherwise they would have found a market as powdered cubebs.

MR. CLOSE.—I would like to ask whether that rhubarb would not answer just as well for fluid extract?

DR. SQUIBB.—I don't throw away that rhubarb in making fluid extract. I take the hearts out of such pieces, and out of inferior grades, sometimes far lower than that, to make fluid extract, and throw the rotten part away—which amounts to a small proportion in the end. Then I grind the other into fine powder and submit it to the action of strong alcohol; then use that alcohol as so much alcohol to exhaust the other and make it a pint for 16 troy ounces of the rhubarb which has been separated from this bad. That is to say, I believe that the rhubarb so separated is not so good as good rhubarb, but by adding alcohol which has percolated through the second part of it—the very bad being thrown away—a good fluid extract may be obtained. I make three divisions; one, black, rough-looking stuff, which is thrown away; another portion separated from that, but which is pretty good, probably as good as the first portion. That I submit to the action of strong alcohol which is to be afterward used in making fluid extract from the other portion. As the second portion is not perfectly good, I don't count it, or what may be abstracted from it by the alcohol, but contribute that towards the other to make up its deficiency and make 16 troy ounces to the pint. That I consider makes a very nice fluid extract of rhubarb, and has given universal satisfaction.

Dr. Squibb read an interesting paper on Carbolic Acid; the essay was illustrated by several specimens of this acid of different grades of purity. On motion it was referred for publication.

DR. SQUIBB.—Mr. Chandler, who had this subject in contemplation, I supposed would answer his query, and I intended this note as a sequel or addition to it. Supposing he would go into the chemistry of the acid, I ommitted that, and merely went into its application and some experience I had abroad, which I thought would be an useful summary to this answer to the query. I got a note from him, saying he would not be able to present anything on the subject of carbolic acid, and he desired me to say so to the Association. I revised this somewhat and went into the chemical matters to make this note more complete than it would have been as a corollary to this paper. There was a block of acid said to have been exhibited at the Paris Exposition, open to the action of the air, and to have remained there through the whole exposition unaffected by the action of the atmosphere. That melted at 42·2° centigrade. If that be true, an analysis of such a specimen might show a different result. I intend to introduce a note which I have omitted, that the mixture of this impure carbolic acid with any inert powder, such as carbonate of lime or quick lime, very much increases the sphere of its activity. It is very often used in that form as carbolate of lime. I need not say there is no such thing as carbolate of lime. It is merely a mixture of this impure or crude mixture of the two alcohols with half or wholly slacked lime or carbonate of lime. When the label is so printed as to have the word "crystallized," it is a good plan to put the pen through that word when the ounce of water is added. If the label be marked in some such way, it is distinctive of the change that has been made. I want to reprobate the idea of making distinctions without giving any reference in the label. Not only do manufac-

turers fail to put their names on the bottle, but there is no method by which we can ascertain whether we are using the best article they prepare. In these samples there is no method of distinction of the grades by any prices or references on the bottles. No. 1 has a gilt label, and No. 2 a black label, but there is no indication that there is any difference, and a person who had only one sample would not know that there was a better one or a worse one. It is alleged that Merck makes two or three different grades of his alkaloids, and nobody can tell what grade he is buying. I make use of him because he is out of the country, and I don't want to be invidious and bring it too near home. In using this acid I put my name on the bottle, and that is the acid I propose to use for the crystallized, because it is the best of its kind, though I don't think that it is equal in efficiency to the No. 5. The samples were not intended for exhibition, but I bring them here because it is a matter of great interest. The object of these labels is that the buyer can sell it for what he pleases.

THE PRESIDENT.—I speak the sentiment of the Association in tendering thanks to Dr. Squibb for such a thorough and interesting discussion on this subject.

MR. MAISCH.—There is one point upon which I differ materially from Dr. Squibb. In two passages he states that creasote and carbolic acid are not acids but alcohols. We must remember in organic chemistry there is no such class of combinations as acids. In organic chemistry there is a class called alcohols, and to that class carbolic acid belongs, but there is a distinction in the application of these terms "acid," and "alcohol," which must be taken into account. That difference is simply this; that the term "acid" has reference merely to the combination of the compound with alkalies and what are usually called bases, while the term alcohol has reference to its rational, its true chemical constitution. It is not the ultimate composition which places cresylic and phenylic alcohols among the alcohols, but their rational constitution, in consequence of which they enter into analogous combinations and form a series of compounds of analogous composition. Carbolic acid is an alcohol, but it happens to be an alcohol which has acid properties.

DR. SQUIBB.—I would like to have that go upon the record; Mr. Maisch is often right.

At the request of the Secretary, the afternoon session was set apart for the reading of the report of the Committee on the Legislation regulating the Practice of Pharmacy, the report being too lengthy to be taken up during the morning session.

THE SECRETARY.—I would like to bring a subject before the Association now, so that it may be acted upon during the present meeting. It is known, perhaps, to most members, that at an early date of its organization, this Association adopted a code of ethics, which is printed in the first and second years' Proceedings for 1852 and 1853, but since that time they have never been printed and have never been read. I am sure that a great many

of our members do not know there is such a code of ethics in this Association. I therefore offer the following resolution:

Resolved, That a committee of three be appointed by the chair to take into consideration the code of ethics adopted at a former meeting and report thereon.

It gives that committee perfect scope to bring it up, or have it read, or do anything else they please.

DR. PILE.—I should like to know what that refers to.

MR. MAISCH.—That is the reason I bring the matter up. There are quite a number of members who don't know that there is a code of ethics of the American Pharmaceutical Association, and I am sure I am not far out of the way when I assert that nine-tenths of the members are not aware of its existence; that is the reason I call it up—so as to bring it before the Association in some shape or other.

MR. PROCTER.—I think when the habit of publishing that code of ethics was dropped, that it was from some action in which it was intentionally left out—that it was not intended to be considered as binding.

THE PRESIDENT.—I think up to a certain time it was considered part of the Constitution, and in joining the Association one must subscribe to it. In the progress of our sessions we abolished that.

MR. MAISCH.—If you refer to the published proceedings, you will find that is not the case. It is contained in the proceedings for 1852, in the body of the proceedings, and is afterwards printed as an appendix to the proceedings. In the body of the proceedings the discussion on the code of ethics is contained, and after the adoption of the whole it is printed as an appendix. In 1853 it came up again, and was again adopted, but was not printed in connection with the Constitution.

MR. TAYLOR.—It would be very proper to refer this to a committee and have it investigated.

THE PRESIDENT.—A committee appointed for this purpose would have to travel over our whole former record. We started out on a different basis from that on which we now conduct the Association. The ideas of those who originated it were more restricted in regard to membership. Some held that none should be members except those that were delegated by proper societies. After that we extended the membership, and it became the custom, I forgot whether through the action of the Association, or by resolution, to omit the code of ethics.

MR. PROCTER.—I think it used to be the custom, when a member applied for membership, to say that, "having read the Constitution and code of ethics, I hereby subscribe to them." There came a time when that was left out. It was considered so stringent that many persons, who would become members otherwise, could not do it, if required to subscribe to that code of ethics.

THE PRESIDENT.—I regard this as one of the most important questions that can come before us, and I don't like to submit the subject to so few members. It would necessarily have a local character coming from so few members.

It may prove that this committee can report at this meeting, or not until next year, as may be found upon examination of the subject.

The resolution offered by the Secretary was amended by substituting the word five for three members to serve on this committee.

The amendment was carried, and the resolution as amended was then adopted.

The President appointed the following members to report on the code of ethics: Prof. William Procter, jun., Philadelphia; Henry W. Lincoln, Boston; Dr. J. Baker Edwards, Montreal; Edward H. Heinitsh, Columbia, S. C.; Conrad J. Geiger, Canton, O.

The Chair likewise announced the following committee on unofficinal formulas: George F. H. Markoe, Boston, Chairman; J. Faris Moore, Baltimore; Albert E. Ebert, Chicago.

The Executive Committee brought forward the names of the following gentlemen as candidates for membership, they having complied with the requirements of the constitution:

M. Primo, Mobile, Ala.
John J. Lambe, Hartford, Conn.
Rob't Parham, Leavenworth, Kan.
Wm. Elliott, Baltimore, Md.
Jas. P. Frames, "
J. H. B. Jefferson, "
Jos. Muse Worthington, Baltimore, Md.
Aug. Breunert, Kansas City, Mo.
Wm. W. McKechnie, Jersey City, N. J.
Geo. H. White, Jersey City, N.J.
Chas. B. Smith, Newark, N. J.
Wm. H. Voorhees, Plainfield, N. J
Jacob Heisler, Vincentown, N. J.
Theo. F. Burt, Brooklyn, N. Y.
Thos. Jones, " "
Henry C. Morse, Elmira, N. Y.
Jas. L. Contant, Flushing, N. Y.
Geo. F. Dege, New York, N. Y.
Andrew J. Ditman, New York, N.Y.
Chas. A. Osmun, "
J. F. Daniel Lobstein, Sag Harbor, N. Y.
John S. Crawford, Dayton, O.
Jos. Karch, "
Fred. J. Delker, Ashland, Schuylkill Co., Pa.
Henry A. Bower, Philada., Pa.
Robt. England, "
Caleb R. Keeney, "
Henry B. Lippincott, "
Wm. McIntyre, "
Adolph W. Miller, "
Wesley Mullin, Chestnut Hill, Phila. Pa.
Henry T. Peck, Philadelphia, Pa.
Edward M. Roche, " "
Roland Seeger, " "
Bennett L. Smedley, " "

The Chair appointed Messrs. Jos. L. Lemberger of Lebanon, and Samuel S. Bunting of Philadelphia, tellers, who reported the unanimous election of the candidates.

MR. STEARNS.—I would like to ask Dr. Squibb if he has investigated the application of carbolic acid in combination with soap, as it is now being used somewhat for agricultural and also medicinal purposes as an application in contagious diseases; also, if he lost sight of the fact that we are indebted for the medicinal use and obtaining of carbolic acid in its purest form to a sort of side issue. I understand this form is the result of a want of the manufacturers of picric acid, and the application of carbolic acid to medicine is simply a side issue.

DR. SQUIBB.—Those are matters I expected to be taken up by Mr. Chandler. I have not lost sight of the creasotic soaps. Their reputation is not established. They seem to be gotten up to make money, rather than for other purposes. In regard to the other points, it may be useful to state, a few years ago coal tars were difficult to be disposed of by the gas companies. The public authorities refused to allow them to be put anywhere. Now, they are all contracted for long ahead, and the object which stimulated this demand was to obtain benzine and the artificial asphaltums. For benzine the light products are taken, and the distillation is then carried on to the end. The first product of the distillation is called light oil. This contains the benzine, and then distills a quantity of liquid called the dead oils, and from these the carbolic acid has been taken. The first or light oils contain the benzine series of compounds. In the rectification of that crude benzine occurs a distillate, which is obtained at a higher temperature than benzine, called benzine tailings; from that much of the carbolic acid is obtained. These benzine tailings contain the most phenylic alcohol, and from that it was obtained until recently. These alcohols are now obtained by direct decomposition of other matters, but the great portion of it comes from these tailings of benzine, and from the dead oils, or distillates of that character between the benzine series and the asphaltum. It is true that rosolic acid and some other organic compounds are used for dying purposes; that the best picric acids are made from the purest carbolic acids, so called. The ordinary grades of carbolic acid answer it very well, but it is not in my knowledge that crystallized carbolic acid is ever used for picric acid.

MR. BRINGHURST.—I have known impure carbolic acid to be used on a dog which had sores all over his body, and was also badly infested with fleas. In the course of about ten days' treatment with impure carbolic acid—taking a tea-spoonful in about a pint of warm water and washing the dog all over with it—it seemed to have cured the skin disease, the dog looking much better than before the treatment, the sores having dried up, the scales falling off, and the fleas entirely gone.

DR. SQUIBB.—That is an interesting point in connection with a circumstance mentioned by Dr. Ruschenberger—that he had tried it on a pet dog of his who was infested with fleas, and they did not mind it at all. He put them in a solution of it, they swam in it, and did not mind it at all.

MR. CLOSS.—I tried it on saw-dust for roaches, and it had no effect on them.

MR. BRINGHURST.—The first days of the treatment I found three or four

fleas every day, but by keeping on with its use for a week or ten days—I have not seen since then any fleas on him. I attribute their existence after the first application to not having covered him entirely. Another point was, I did not put it on about his face; and there were sores that were not cured, while the others were getting well.

Mr. George C. Close, of Brooklyn, read, in answer to Query 33, a paper on Conia and its Salts, which was accepted and referred for publication.

Mr. Close.—I would say in connection with the remark of Dr. Squibb, made in regard to Merck's articles, that in the last experiments I made, I obtained two parcels of ½ ounce each; one was labelled, with a written label, conia, and the other with a printed label. The seal of both contained the name of Merck. With one of these I obtained this product. I afterwards tried the other and obtained a solution which became a dark indigo blue and finally changed to a purple and produced a mass of very imperfect crystals which have a strong odor of conia, which the other has not. I have no doubt that these vials did not come together.

Mr. Procter.—The impurity of conia arises from distillation. The usual source is the seed. By distilling these with a solution of potassa, you get not only the conia but the volatile oil, and this mixture is thrown into commerce; this may be shown by acidulating the oil. Treatment with acid leaves the oil behind.

Dr. Pile.—Some time ago I received, from a large house in New York, a sample of tartaric acid which was offered at a very low price. I found it contained 50 per cent. of Epsom salt—a moderate per centage. (The sample was exhibited to the Association.) From the taste and appearance, it looks very well; perhaps by a considerable effort you may detect some difference in the taste. The means of detecting the adulteration is quite simple. Tartaric acid, when it is heated red hot, is totally consumed, and leaves hardly a trace of ash. With this adulteration the whole of the Epsom salt remains, of course dry—very dry, but by dissolving in water, filtering it and crystallizing it, you get the Epsom salt pure. In that way I detected this adulteration. The same lot was sent to me by a broker in Philadelphia, for the purpose of detecting whether it was a good article, it being offered at 60 cents a pound by taking several casks. It was returned with the answer that it could not be sold here at any price, and I suppose it is now for sale in New York.

Mr. Markoe.—The same lot was exposed for sale in Boston, and the adulteration was instantly detected.

Dr. Squibb.—It is a curious circumstance how these fashions will be followed. The origin of this adulteration, so far as I know, was a sale by the government of a lot of tartaric acid, so adulterated, taken on board of a blockade runner during the war. During the early part of the war the drugs that were taken on these runners were generally sold at auction without any inspection of their saleable condition whatever, and a lot of this acid was

sold and passed round. It was known in New York, and was seen at the time. Until that time I had never heard of the adulteration of tartaric acid by sulphate of magnesia. Since then it has not been uncommon, and within the past two or three weeks, I heard a drug miller say he had been applied to by a drug house, whose name he mentioned, to powder sulphate of magnesia in connection with tartaric acid.

MR. STEARNS.—Has Dr. Squibb any information in regard to the use of Epsom salt in the adulteration of Rochelle salt in Seidlitz powders?

DR. SQUIBB.—No, sir, I have not.

Mr. Stearns on behalf of the Committee to which was referred the communication of the East River Medical Association of New York, presented the following preambles and resolutions:

Whereas, The East River Medical Association of New York, through its Secretary, has submitted a preamble and series of resolutions regarding the renewal of Physicians' prescriptions without due authority for such renewals, for our consideration, and

Whereas, The discussion of this important subject has called forth a free expression of opinion from our members, therefore

Resolved, That this Association regards the Pharmacist as the proper custodian and owner of the Physician's prescription once dispensed.

Resolved, That however desirous we may be to accede to the request of the East River Medical Association, the restriction of the Pharmacist to a single dispensing of a prescription without the written authority of the prescribing physician for its renewal, is neither practicable nor within the province of this Association. Nevertheless we regard the *indiscriminate* renewal of prescriptions, especially when intended for the use of others than those for whom they were prescribed, as neither just to the physician nor to the patient, between whom we stand as conservators of the interests of both, and that such abuses should be discouraged by all proper means.

Signed,

F. STEARNS, of Detroit, Mich.
FERRIS BRINGHURST, of Wilmington, Del.
HENRY W. LINCOLN, of Boston, Mass.
J. FARIS MOORE, of Baltimore, Md.
JOHN H. POPE, of New Orleans, La.

The entire report was adopted by a unanimous vote.

Professor Bedford read an essay on the Morphia Strength of Powdered Opium, in answer to Query 18, which was accepted and referred.

The same member likewise read a paper on Improvements in the Preparation of Syrupus lactucarii, in answer to Query 29,

which was accompanied by a number of specimens of the syrup, prepared according to the methods tried. It was referred for publication.

MR. MAISCH.—Have any experiments been made to ascertain whether the syrup made with magnesia contains all the strength of lactucarium?

MR. BADFORD.—I can't detect any difference in the taste, but I have no means of knowing. I don't use two ounces of lactucarium probably in the course of a year.

The Secretary stated that he had given due attention to the subject referred to him last year in Query 32, relative to the medicinal value of the lactescent juice of Lactuca elongata, and proceeded to relate verbally the results obtained by him, which are directly opposite to those obtained by Aubergier and to the opinion expressed of this plant in the United States Dispensatory; in view of the importance of the subject and that want of time had prevented him to write out these facts, he asked leave, which was granted, to prepare a paper in time for publication in the Proceedings. Specimens of different varieties of the plant, of the lactucarium obtained from it and of the syrup were exhibited to the Association.

Mr. Lincoln, of Boston, offered the following resolution:

Resolved, That a committee of five be appointed by the Chair to solicit photographs of members of the Association to be kept in an album, to be on exhibition at our future meetings.

The resolution was carried.

The Treasurer stated that he had received a letter from Mr. E. H. Sargent, stating that the Chicago College of Pharmacy extends an invitation to the Association to hold its next annual meeting in the City of Chicago.

The Secretary announced that he had received an official invitation to that effect, signed by the Secretary of the Chicago College of Pharmacy.

On motion, the Association now adjourned until half-past three o'clock this afternoon.

Sixth Session.—Thursday Afternoon, Sept. 10.

The meeting was called to order by President Parrish. The Secretary read the minutes of the last four sessions, which were approved.

On motion of Mr. Bringhurst, the Permanent Secretary was instructed to furnish a copy of the resolution in regard to the renewal of physicians' prescriptions, passed at the fifth session, to the East River Medical Association.

The Secretary read the following letter:

THE CHICAGO COLLEGE OF PHARMACY,
Chicago, Sept. 5, 1868.

At a regular meeting of the Chicago College of Pharmacy, held Sept. 2d, 1868, a resolution was passed, extending a cordial invitation to the American Pharmaceutical Association to hold their next annual meeting in the City of Chicago.

LOUIS STREHL,
Recording Secretary.

To the Secretary of the American Pharmaceutical Association.

The Secretary read the report of the Committee on Legislation Regulating the Practice of Pharmacy, which, on motion, was adopted and referred for publication.

The following resolution appended to this report came up for consideration:

Resolved, That the President and ex-Presidents of this Association, attending this meeting, be appointed a Committee to take into consideration,

1st. The propriety of drafting a law regulating the entire practice of pharmacy, to be presented to the legislatures of the different States and Territories for their adoption, together with a memorial setting forth the duties of the profession to the public, and its actual and contemplated status;

2d. The propriety of inviting the co-operation of the American Medical Association, and of the local Medical and Pharmaceutical Societies;

And that the Committee thus appointed be requested to report at a subsequent session.

MR. MAISCH.—You will observe how this resolution is worded; it simply says the President and ex-Presidents attending the meeting be appointed a committee to take into consideration the propriety, etc. The object was to facilitate the business. If the Association agrees to that resolution, it would be the duty of that Committee to consider the matter, and report whether they think this the proper time to memorialize or not, and then make definite suggestions as to the appointment of a committee for the carrying out of the objects.

THE PRESIDENT.—At this late period, I suppose the appointment of such a committee would be in view of their reporting next year.

MR. MAISCH.—That might be better, because there is another clause to consider the propriety of acting in harmony with the American Medical Association, which does not meet until next June. In the meantime, however, some of the States might pass laws entirely inefficient. That would be the only difficulty.

MR. BROWN.—It is the intention of the Legislature of Kansas to pass laws this next coming winter, and I should like to have this committee frame some law by which we could be governed.

THE PRESIDENT.—I think this committee could act better after the report was in print.

MR. MOORE.—A law in relation to the city of Baltimore will undoubtedly be passed at the next session of the Maryland Legislature, and that law will be carried out; we will find people who will prosecute under it.

MR. BROWN.—I should like to have this a concert of action, and have similar laws passed at the same time, so that a pharmacist going from one State to another may understand perfectly the laws on the subject.

MR. SLOAN.—Would it not be well for the Association to suggest what they regard as a proper law, and suggest it to the States? In my State there is no law at all; any law which should be suggested by this Association would be undoubtedly considered by the Legislature.

THE PRESIDENT.—I would state in this connection, that I have noticed that when accidents arise to which public attention is directed, some catastrophe as the taking of poison by accident, immediately the members of the Legislature want to pass a law. I remember distinctly, in this State, that I had a letter from a member, almost immediately after an accident that appeared in the papers, inquiring if I could not give a hint of how to frame a law to protect the public. He wanted the credit of introducing it; that would be the way everywhere. I think we would have no difficulty in having the law we frame introduced into the legislatures, but I think it is a difficult subject, that will require great deliberation and care on our part.

MR. MAISCH.—It is not necessary that the committee which should be appointed under this resolution, should frame a law, perhaps, by to-morrow morning. That is not the intention. The intention is to consider the propriety of doing that, and then make some suggestions in regard to the appointment of a committee, or to have somebody to represent the Association and carry out the views which may be expressed, or which may be agreed upon by that committee.

MR. WRIGHT.—I think, before the Association commits itself to so important a measure, that the committee should frame a bill to be submitted to the Association for its action as a body, before it is sent to the legislatures at all; it would then go a greater way. I have not looked into the subject as much as Mr. Maisch has, but I have read the English Pharmacy Act, and think it nearly meets our case, so far as I can see. I have drawn up a resolution looking, in the way I suggest, to a report from the committee at the next annual meeting. I think it is a question that takes time, and ought to be well done when it is done. I offer as an amendment that the committee report at the next annual meeting of the Association, before taking any action with the legislatures of the several States.

MR. MAISCH.—I wish Mr. Wright to distinctly understand that the committee which is proposed in this report has no power at all to do anything.

It is merely to report to this Association a plan whereby a committee may be appointed to carry out the ideas of the Association.

Mr. Wright.—I understood, from the reading of the report, that the committee were to frame a law to be presented to the legislatures.

Mr. Maisch—No, sir; to consider the propriety of framing such a law, and report at another session. The committee can report to morrow morning, or next Saturday, or whenever we have a session. I should suppose it would not be difficult for the committee to agree upon something.

Mr. Wright.—I don't think there is any necessity of appointing a committee to consider the expediency of that. I think there is very little doubt but that the Association will vote that a committee is expedient.

Mr. Taylor.—I move to amend that it is, in the opinion of this Association, expedient to appoint such a committee.

The President.—It is moved by the Business Committee that a committee be appointed to draft a law for the regulation of the practice of pharmacy in the several States and report at the next annual meeting.

Mr. Taylor.—It is necessary to adopt this amendment to make it in shape. The amendment cannot be accepted, because the whole committee is not here. The amendment must be carried by the Association.

Mr. Wright withdrew his amendment.

Mr. Coddington.—If the gentleman moves it as a substitute, would it not be in order to take the question upon the substitute?

Mr. Lancaster.—In courtesy to that committee, we are obliged to accept the amendment made by the Business Committee, as an amendment. If that is voted for and carried, that stands as the sense of this body.

The President.—By common consent, we will take a vote on it as an amendment. It is not of the same tenor as the resolution. It pertains to a different branch of the same subject—not a committee to consider, but a committee to do something, is the motion of Mr. Taylor.

Mr. Taylor.—The resolution is that a committee be appointed to inquire whether it be expedient; the amendment is, instead of appointing a committee to inquire, that it is the sense of this Association that it is expedient.

The amendment proposed by Mr. A. B. Taylor was then adopted.

Mr. Coddington.—I should be in favor of having this matter carried out without reference to the medical profession. The more you have to assist, the more conflicting it will become. I think the pharmacist will understand this thing better than the medical practitioner. And I believe if the legislatures had notice in advance that our Association had this subject under consideration, they would delay action until they heard from us. Some doctor got this vexatious law passed by the legislature of New York, which is, in fact, of no effect; it is only an embarassment to the conscientious apothecary, while those who don't care about it, evade it.

MR. DALRYMPLE.—It is very important that this matter should first come from the American Pharmaceutical Association. In New Jersey we have no rule relating to the sale of medicines or in regard to pharmacy whatever. It seems very necessary to many of our citizens that some law should be passed. Last winter our Legislature spent some time over it, endeavoring to frame a law, but they were obliged to abandon it. In many of our counties we have no medical societies, and this law having emanated from some medical men, the druggists and apothecaries felt that they should prompt themselves, and make suggestions to the Legislature. I am glad to see this action taken, and I hope the resolution will prevail, and that the committee will report to this Association a law acceptable in every respect.

Mr. Coddington moved to amend by striking out the last sentence of the resolution of the Committee, aiming at the co-operation of the American Medical Association. The amendment was seconded and passed.

The resolution as amended was then read, as follows:

Resolved, That it is expedient to appoint a committee to draft a law regulating the entire practice of pharmacy, to be presented to the legislatures of the different States and Territories for their adoption, together with a memorial setting forth the duties of the profession to the public and its actual and contemplated status.

The amended resolution was then adopted unanimously.

Some discussion took place in regard to the propriety of appointing a large committee, but the opinion prevailed that the number should be limited, and that the members be appointed from such localities that they might readily consult together, without, however, neglecting to correspond with other members of the Association residing in different sections of the country.

It was moved and seconded that the committee consist of six members. Two amendments were offered and seconded that the number be five and three, respectively. The question being taken on the highest number, six, it was decided in the negative by a large majority. On the question of making the number five, a division was called for, when 25 members voted in the affirmative and 31 in the negative; the amendment was declared lost. The amendment to have this committee to consist of three members was then carried, and the resolution as amended adopted.

The President announced the following Committee on the Photographic Album: Henry W. Lincoln, Boston, Chairman;

P. W. Bedford, New York; James T. Shinn, Philadelphia; Louis C. Strehl, Chicago; George E. Jeannot, Louisville.

The Chairman of the Committee on the Code of Ethics made the following verbal report:

MR. PROCTER.—The Committee have consulted together in regard to the code of ethics, as it was adopted at the beginning of this Association, and on comparing it with the Constitution as it now stands, they are of the opinion that, at the time the present draft of the constitution was adopted, the most important points of the code of ethics were incorporated in it, and that, from that time, by tacit consent, though without any special action, the code of ethics was set aside practically. They propose that it should be now read, and if that is agreed to, that it be decided positively whether we have a code of ethics or not. It stands in the book of the Constitution that is signed every year, and if it is not in force it should not be in that book.

THE PRESIDENT.—That book, being the original book, is the only one that has so many autographs of our members, some of whom have passed away. We cherish their recollection and we like to keep up that roll, and it is upon that ground that the book is used for signatures. When we adopted the Constitution as it now stands, it was considered as superseding the code of ethics.

MR. PROCTER.—The original Constitution as there written is covered over by a new Constitution, showing that that was expunged, but that it was not intended to expunge the code of ethics, or it would have been removed or pasted over. The Association can decide whether they wish a code of ethics or not.

MR. TAYLOR.—Does the Committee consider it expedient to expunge that code of ethics?

MR. PROCTER.—I think the majority of the Committee were in favor of setting it aside, thinking that the spirit of the code of ethics was in the Constitution.

Mr. A. B. Taylor moved that the Code of Ethics be considered as expunged; pending the consideration of which, a motion was made to adjourn until Friday morning at nine o'clock. The motion was carried and the Association adjourned.

Seventh Session.—Friday Morning, Sept. 11.

The Association met at half-past nine o'clock. President Parrish in the chair.

The minutes of the sixth session were read and approved.

Professor Procter, Chairman of the Committee on the Code of Ethics, read this document as published in the Proceedings for 1852, on pages 24, 25 and 26, also Article 1, of the Constitution; he then said:

MR. PROCTER.—It was stated verbally last evening that the code of ethics as read was considered to have been superseded by the first article in the Constitution as it now stands. When that Constitution was adopted, it was considered to cover the most important points of the code of ethics, and, without any formal annulment of the code of ethics, it was set aside and has been lost sight of. So far as the Committee understand it, it is for the Association to say whether they consider the strength, the powerful points of the code of ethics, have been condensed in that first article of the Constitution sufficiently, and if so, whether it would be best to annul by resolution the code of ethics formally, and have it set aside.

MR. ALLINSON.—Perhaps Mr. Procter would be kind enough to say whether that Constitution includes the condemnation of apothecaries who allow percentages to physicians. That is an error which in some localities exists to a considerable extent, and whether we ought to be silent upon it is for the Association to judge. I simply wish to call attention to that point.

MR. TAYLOR.—I think that is embraced in that one clause to establish the relations between druggists, pharmacists, physicians and the people at large. I think that would embrace that sufficiently.

THE PRESIDENT.—The Association may from time to time, by its action, express its views, as we have in this meeting, on this subject of prescriptions to some extent, but the idea, I think was (and I remember having a good deal to do with it at the time,) that our Association was meant to be very comprehensive. It embraces persons of exceedingly diverse circumstances, many of them residing in country places, in many of which there would be but a single apothecary, and it was thought by the Association, and I think rightly, that we could not lay down a rule for the whole country in a code of ethics that everybody must subscribe to.

MR. ALLINSON.—I didn't wish to detain the Association. I merely wished to call attention to it.

THE PRESIDENT.—I merely mention that as an explanation of how we came to let the code of ethics slide. As soon as we are able to come up to a high stand, I hope to see one adopted.

DR. EDWARDS.—We considered, upon reviewing the subject, that the affirmative was the best side to take—not the negative; that it was not necessary exactly to request every member to put down any thing like a confession of faith of what was reprehensible and what was excellent action, but to establish the general principle that good faith, honor and probity, in every sense, were upon the side of the Association. Those are the objects of the Association, and if a man voluntarily subscribes to them, he goes on the side of the right. If a man is found to be, after all, on the wrong side, this Association has it in its own power, and has excercised that power, to exclude him from any further participation in the exercise of it, and by one such action, we do more to establish the morale of the Association, than you do by asking him to subscribe to a code of rather indefinite, general principles, which everybody would be disposed to acknowledge as general principles, but which are not sufficient to bind a man in every case; and, therefore, having embraced

in your Constitution all the affirmative principles, it is quite as well to omit the negative.

MR. TAYLOR.—I move that the code of ethics be annulled.

DR. EDWARDS.—I move, as an amendment, that it be considered obsolete.

MR. ALLINSON.—I move, as an amendment, that it be considered as superseded by, and embodied in, Article I of the Constitution.

The amendment of Mr. Allinson was adopted, and the resolution as amended passed.

The Secretary stated that he had been furnished, for distribution by Mr. Heydenreich, of Brooklyn, with a monograph, in the French language, entitled, "de la Cantharide Officinale, par Armand Fumouze."

MR. PROCTER.—This pamphlet contains a very interesting point in regard to these flies. For a long time it was very difficult to isolate cantharidin without great waste, owing to the fact of its being mixed with fixed oil. In this paper chloroform is suggested as the best solvent for cantharidin, and is employed for exhausting the flies. The chloroform is distilled off, and the resulting extract is then treated with bi-sulphide of carbon, which takes up the oily and other impurities and separates the cantharidin in a pure state.

The Business Committee having learned that some members had complained of the Certificate of Membership as not being sufficiently ornamental, moved that it be altered.

MR. CLOSE.—Would it not be better to have a committee appointed to consider the subject?

MR. TUFTS.—I would make a remark for the consideration of the Association, that a new certificate would cost about $250. They can govern themselves accordingly.

MR. BRINGHURST.—I would inquire whether there are not some of the old ornamental ones on hand, for those who don't like the present one.

MR. TUFTS.—There are about a dozen—a little discolored by age, but perhaps they would be more appreciated on account of that.

MR. EBERLE.—I would suggest that some American flags and banners be added to the diploma to suit those that want more ornament.

On taking the question, all the votes were cast in the negative, and the motion was therefore lost.

The Business Committee stated that Professor Ehrenberg, of Berlin, was about to celebrate the fiftieth anniversary of his obtaining the degree of M. D.

DR. HOFFMANN.—Last evening professional friends of the city of Philadelphia had the kindness and good taste to bring the service and use of the microscope to the attention of the members of this Association. There could hardly be

a more appropriate and pertinent exhibition, for we all know the important place which the microscope claims in our profession; we know that the time soon will come when the microscope and the spectroscope will be indispensable acquirements to our professional labors. For the examination of most of our botanical drugs, for detecting the adulterations of many articles of the materia medica, and of others used for domestic purposes, in the trades and arts, the microscope is now-a-days of far greater service than the test tube and the blow pipe. The microscope and its present high perfection are not of novel date, but the immense service it has done to the physical sciences and their practical application are mainly due to the life-long toil and labor of one individual man. You all, who are so well acquainted with the progress of science, know that Christian Gottfried Ehrenberg, the friend and companion of Alexander Humbold, has disclosed through the microscope a new world of a minute creation. When looking over the works of this most prominent philosopher, we are strongly impressed by their number and their accuracy, and that there is hardly any living naturalist who has done greater service in a more difficult and unlimited domain of science than Ehrenberg. Every branch of applied science, particularly in medicine and pharmacy, have derived innumerable and permanent resources by his achievements. While the telescope has opened a sublime panorama of creation, where numberless worlds sweep along their eternal orbits and carry the impress of the Creator to the remotest scenes of the universe, the microscope, mainly through Ehrenberg, revealed the grand immensity of littleness, and has led us to a novel aspect of the ultimate constitution of nature and to minute creation. The one impressed man with the insignificance of our globe, the other redeemed it from all its insignificance by teaching us that the earth and the waters—that plants, and even animals, are teeming with life, numberless as are the glories of the firmament.

Ehrenberg is still living among the few great veteran savants whose genius, achievements and labors have brought on the dawning of the present epoch of modern science; he completes during the present year the fiftieth year of his doctorate. Most of the learned societies and professional associations of all countries accepted this rare occasion to offer a tribute of acknowledgement and honor to their great aad venerable master. The American Science Convention, which met at Chicago just one month ago, accepted, unanimously, on motion of its President, Prof. Barnard, the following resolution:—

"WHEREAS, This Association is apprised that the veteran naturalist, Christian Gottfried Ehrenberg, will complete during the present year the fiftieth year of his doctorate in medicine; and

"WHEREAS, The Association sincerely desire to express their high appreciation of the eminent services rendered to natural history, and especially to the knowledge of microscopic organism, by this distinguished investigator and observer; therefore

"*Resolved*, That a committee of three be appointed to prepare an address to be presented to Dr. Ehrenberg, on the occasion of his approaching jubilæum, congratulating him on the long and honorable career, which it has been permitted him to enjoy, and assuring him of the deep veneration and respect in which his name is held in America."

I understand that medical associations of this country have adopted, or are about to adopt, similar resolutions in concurrence with the American Science

Convention. Our profession, so closely indebted and pertinent to the scientific achievements of Ehrenberg, ought not to stand back from other sister associations; it will honor itself by duly honoring one of the greatest living masters of its auxiliary sciences. While calling the attention of this meeting to the action taken by the American Science Association at Chicago, and probably by most of the learned associations of all nations, allow me to make the motion that this meeting may see fit to endorse the resolutions carried by that Chicago Convention, and to nominate a committee of three to communicate in writing our resolutions to Prof. Barnard, with the request to add them to theirs, and, in common, to communicate them to Professor Ehrenberg, in Berlin.

MR. PROCTER.—I very much approve of the suggestion of Dr. Hoffmann, except in one particular. I think, whatever action is had, that it should be direct, and not through any other body. I think that the American Pharmaceutical Association, in a matter of this kind, is adequate to express its opinion, and send it directly to some friend of Dr. Hoffmann's, in Berlin, and have it presented, without going through any other hands.

Dr. Hoffmann then presented the following resolution:

Resolved, That a committee of three be appointed to prepare an address embodying the kind sentiments of this Association, to be sent to Dr. Ehrenberg, on the occasion of his approaching jubilæum, in the name of the Association.

The resolution was adopted unanimously, and the Chair appointed the following committee: Dr. Fred. Hoffmann, New York, Chairman; Prof. Wm. Procter, Jr., and John M. Maisch, of Philadelphia.

Professor Procter offered the following resolution:

Resolved, That the Executive Committee are hereby requested to have the reports on the Legal Aspects of Pharmacy, and on the Drug Market, printed in larger editions than the volume of the Proceedings, and that the extra copies of the former be furnished to the libraries of the several State Legislatures, to the Governors of the several States, and the leading Judges of the Courts; and that the latter be placed at the disposal of the Committee on the Drug Market for the current year.

MR. MAISCH.—I think that is a very excellent motion; notwithstanding, by a resolution passed heretofore, we shall furnish hereafter copies of our Proceedings to the State libraries, I think well of furnishing them with extra copies of the report on legislation.

MR. PROCTER.—It would be well, as it would occupy only a short space, to print our Constitution at the end of it, so as to give them information as to who the American Pharmaceutical Association are,—what body it is.

THE PRESIDENT.—In a pamphlet, it is understood.

DR. HOFFMANN.—Will the whole of the report on the Drug Market be printed?

MR. MAISCH.—I will state, as I think I know what Dr. Hoffmann refers to,

that the editor will take good care that that resolution which has been passed by the Association shall accompany it,—the resolution not endorsing that portion recommending the repeal of the drug law.

The resolution was adopted.

The Executive Committee brought forward the following document, and heartily endorsed the recommendation:

PHILADELPHIA, Sept. 11, 1868.

To the Executive Committee of the American Pharmaceutical Association:

The undersigned members of the American Pharmaceutical Association desire to present the names of the following pharmacists as worthy to be elected honorary members:

Daniel Hanbury, London, England.
Henry Deane, London, England.
A. T. Demeyer, Brussels, Belgium.
Norbert Gille, Brussels, Belgium.
Dr. F. A. Flückiger, Berne, Switzerland.
Dr. G. C. Wittstein, Munich, Germany.
Dr. Frederick Mohr, Bonn, Germany.
Dr. Herrmann Hager, Berlin, Germany.
Dr. G. Dragendorff, Dorpat, Russia.
Dr. Arthur Casselmann, St. Petersburg, Russia.

A. B. TAYLOR,	WM. PROCTER, JR.,
P. W. BEDFORD,	FRED. HOFFMANN,
HENRY W. LINCOLN,	J. FARIS MOORE,
F. V. HEYDENREICH,	CHAS. A. TUFTS,
EDW. PARRISH,	JOHN M. MAISCH.

Prof. Procter suggested to add to the list for honorary membership the names of Messrs. Robinet and Boullay, of Paris; the former having long been known as a prominent pharmacist, and having acted as General Secretary to the two Pharmaceutical Congresses held in Paris; the latter having introduced into pharmacy the process of displacement, which is nowhere used to such an extent as in the United States. The recommendation was warmly supported by Mr. Heydenreich and others, and both names were then by the Executive Committee added to the list submitted before.

The question being taken, all the gentlemen proposed were unanimously elected honorary members of the American Pharmaceutical Association.

The Executive Committee presented the names of the following gentlemen for membership, they having complied with the requirements of the Constitution:

James Evesson Bright, Worcester, Mass.	John C. Hurst, Phila., Pa.
Geo. Foss, Hoboken. N. J.	Wm. F. Roche, " "
John E. Grove, Philada., Pa.	A. W. Wright, " "
	Chas. P. Johnston, Memphis, Tenn.

The Chair appointed Messrs. Thos. A. Lancaster and Jos. P. Remington tellers, who reported the unanimous election of the candidates.

The Secretary exhibited a specimen of galangel, which had been sent to him from the State of Illinois, in the interior of which it was sold by travelling quacks as a sort of cure-all, under the name of Radix Blodgetti, and at the extortionate price of 50 cents for one to one and a half ounces, its wholesale value being about 20 cents a pound.

The Business Committee presented the following resolution, offered by Mr. Thos. A. Lancaster, of Philadelphia:

Resolved, That a committee of three be appointed to draft and present at the next annual meeting rules and regulations in compliance with parliamentary usage, better to facilitate and expedite the business of the Association.

MR. STEARNS.—I heartily endorse that resolution. As the Association grows older, it is necessary for us to classify our doings, so that members who have papers which require demonstration will know when they are to read them. Certain papers require explanation by sample and experiment, while others, that are statistical and go into details, are not interesting as read. It is important to pass some rule whereby such papers may be read by their headings, and then published in the Proceedings.

MR. LANCASTER.—The resolution will not interfere with any of the proceedings of the Association, but will have a tendency to conduct the business more in conformity with parliamentary usage. By having a correct system, and the Chairman carrying it out, the business of the Association will be greatly facilitated.

MR. TUFTS.—I trust that resolution will pass. I brought it forward three years ago, and was voted down; but I have been of the same mind ever since.

MR. EBERLE.—The great advantage of such a committee would be in striking out the reading of a great deal of matter and the substitution of other matter; merely reading the long statistical papers by their headings, or giving a synopsis of their contents and allowing the Association to go through and digest them in the Proceedings. By conducting our proceedings according to parliamentary usage, one effect would be to give every member a fair chance, which I don't think is permitted now, at any rate.

MR. TAYLOR.—The difficulty in long papers is, we don't know what they contain until we hear them; and, by shutting out long papers, we might shut out a good deal that is interesting.

MR. EBERLE.—That is not the intention; it is merely to condense those papers, and give a condensed account of them.

MR. TAYLOR.—It appears to me that matter could not be accomplished, unless the paper was handed to some committee to condense. In the New York City Medical Society they have the papers referred to the Business Committee, and they point out which parts should be read.

Mr. Stearns moved, as an amendment, that the matter be referred to the Business Committee.

MR. MOORE.—I think any correct rules would include that in it. The resolution relates to the regular transaction of business, how it should be transacted, what should come up to be read. It is the duty of the Executive Committee to examine papers, and see if they are fit for publication.

MR. STEARNS.—That is after they are read.

MR. LINCOLN.—The object of that resolution is to prescribe certain rules in regard to the business of the Association, and not interfere with the reading of any papers, as has been suggested by some of the members. The object is to prescribe certain rules, and have them conformed to.

THE PRESIDENT.—Do gentlemen think it would be safe for us to pass a resolution establishing parliamentary usage for a body which is not essentially legislative, but conversational and scientific?

The amendment of Mr. Stearns was seconded and carried, and the resolution as amended was adopted.

Mr. William C. Bakes, on behalf of the publishers, Messrs. William Wood & Co., of New York, presented to the Association the following works:

Garrod's Materia Medica,
Foote's Practitioner's Pharmacopœia,
Roscoe's Chemistry,
Beck's Adulterations,
Prescriber's Pharmacopœia,
Tod's Thomson's Conspectus.

On motion of Mr. Stearns, the works were accepted, and the Secretary directed to return the thanks of the Association to the donors.

The President appointed the following committee to draft a law regulating the entire practice of pharmacy, and a memorial to the legislatures: William Wright, Jr., New York; Frederick Stearns, Detroit; J. Faris Moore, Baltimore.

THE PRESIDENT.—I have thought a good deal about the subject of the committee to draft a law and memorial to the legislatures in regard to the regula-

tion of pharmaceutical practice, and have endeavored to ascertain the views of members in regard to the points involved. I find it difficult to select three members out of the Association, but I have made the best appointments I could, after consultation with several members, and would suggest that, by vote of the Association, the Permanent Secretary be made *ex officio* a member of this Committee.

MR. MAISCH.—I should like to see the President added to this committee as Chairman. I think it would be well.

MR. ALLINSON.—I move that the President and Permanent Secretary be added to this committee; that will retain an uneven number, and they will be handy for consultation.

MR. STEARNS.—It is not in order. It was voted that this committee should contain three members only.

MR. MAISCH.—It has been the custom in our Association to add one or two or more members to a committee, even when the number was limited by the vote constituting the Committee.

MR. TAYLOR.—This Association is competent to add to that committee.

MR. EBERLE.—Is it not understood that the President is always *ex officio* a member of a committee?

MR. MAISCH.—No, sir.

THE PRESIDENT.—I should have nominated Maisch Chairman of this Committee, but from motives of delicacy. As he resides in Philadelphia, and is one of my colleagues, I thought I would place the chairmanship in New York; but I don't think the committee would work well without his aid, as he has for a year past devoted himself to this subject, and is entirely familiar with it.

Mr. Tufts took the question on the motion offered by Mr. Allinson, which was carried unanimously.

The selection of a place for holding the next annual meeting was laid before the meeting.

PROF. MOORE.—I am authorized by the Maryland College of Pharmacy to extend an invitation to the Association to meet next year in Baltimore. Since arriving here, I find it is the desire, and I presume it is more advantageous to the Association, to go west, and I am perfectly willing to give way to Chicago, with the understanding that Baltimore comes in first the next year for consideration.

The Business Committee moved that the next annual meeting of the Association be held in the city of Chicago, which was carried unanimously.

Prof. Moore moved that the next annual meeting be held on the first Tuesday in September, 1869; the motion was agreed to.

Mr. Charles L. Eberle read an essay on Gelseminia, in answer to Query 11, which was referred for publication.

THE PRESIDENT.—It will be of interest to the members to know something of the effects of this remedy. Dr. Joseph Parrish, who has under his care a number of cases of inebriates and victims to the habitual use of opium, at the institution designed for such, informs me since he has obtained gelsemium as a remedy, he has found it of the greatest benefit in the cases of persons who have been habituated to opium, and that they are greatly diminishing the quantity and ceasing its use. In these cases the symptoms are sometimes appalling, but under the use of gelsemium he finds them invariably, thus far, to subside.

DR. SQUIBB.—I would like to know which is right. One time the President calls it gelsemium, the other *j*elsemium. I have been in the habit of calling it *j*elsemium.

MR. EBERLE.—The school books say g is hard before a, o and u, and soft before e and i, and sometimes hard and sometimes soft before e and y. Where it is soft, it usually commences a word. In the middle of a word it is generally hard, as in *begin*.

DR. SQUIBB.—Usage regulates these things, when law or other things do not. In this case the usage appears so nearly equal that our President uses it one time one way, and the other time the other way.

Query 30, on the preparation of suppositories, was answered by Mr. Eberle. His paper was accepted and referred.

MR. EBERLE.—The suppositories in the exhibition room contain such an inappreciable proportion of hardening ingredient as not to amount to anything—six drachms of cacao butter with one scruple of Japan wax, and are softer than cacao butter becomes after standing. This Japan wax, which I now present for your examination, came from a lot that had been imported, and it was evidently poured into a vessel after a portion of real wax had been put upon the sides; it was then covered with a stratum of true wax, a little thicker than what you see on the sides. The adulteration has not been examined; it has the usual odor, but has evidently been mixed with some animal fat.

MR. MOORE, of Philada.—Japan wax is very excellent, and enables you to dispense suppositories on extremities, and to fill the prescriptions for them that come in daily. Cacao butter, of itself, becomes sufficiently hard when you keep them any length of time. It becomes hard and solid, and will admit of being handled after a few days. I have suppositories that were made last winter, that have remained of the consistency of ordinary cacao butter during the hot weather, but it is impossible to make them so as to dispense them within a short time. If you handle them while fresh they will become soft and lose their form. I have never used Japan wax until I commenced to prepare those you see on exhibition below, but I find it to answer admirably. It don't congeal so rapidly as ordinary wax; it makes them beautiful and gives firmness to the suppository at the same time, without disposing them to lose their form. The only objection to the Japan wax is its tendency to rancidity.

THE PRESIDENT.—Can you always procure it?

MR. MOORE.—I suppose so. I have never had any difficulty. The specimen I have below is some I obtained some months ago, and it occurred to me, as I

found white wax objectionable, to use it for that purpose. The yellow wax, I think, is preferable to the white.

MR. LANCASTER.—In regard to procuring Japan wax, I don't believe there are now 5 lbs. of it in Philadelphia, nor 50 in the city of New York. I had occasion to supply a large quantity a week or two ago, and hunted this city all over, and the reply was "none on hand." I wrote to New York about two weeks ago, and was informed that a party there had received some at the enormous price of 60 cents a pound.

DR. SQUIBB.—My experience with suppositories is very slight, and from the physician's point of view, rather than the pharmacist's. My belief is that suppositories should never be hardened with anything not fusible at the temperature of the body. If so hardened, that becomes a foreign substance, and when the suppository is used in the vagina or urethra, this becomes very objectionable. My experience has been in the direction of preparing suppositories for the urethra, which are going to be more important than they are at present. When the suppository is hardened by white wax, or any substance fusible at a higher temperature than it meets with in the canals of the body, it remains as a foreign substance and an irritant; therefore, suppositories should be sought for fusible at the temperature of the body. Cacao butter has proved to be quite sufficiently hard for urethral suppositories. I find, when good cacao butter is used, that it may be handled enough to be pushed to its place by a bougie or catheter, and that it remains there, and is dissolved, applying the medicament to the portion where it was intended to be applied; and the great point in the use of urethral suppositories is, that they can be pushed to the point where they are wanted, most of the disease being in the membranous portion of the urethra. The diseased point is ascertained by introducing the instrument, to ascertain how far it should go in, and the suppository is then pushed to its place. In my experience, and that of the few physicians I have known intimately who have used these, the cacao butter has been hard enough, and I take it as a deduction, not as experience, that if hard enough for urethral suppositories, it is hard enough for any. It can make but little difference in rectal suppositories what material is used, because that is intended to be an irritant, and to produce an evacuation, although not always, perhaps not generally. Sometimes it is the vehicle of astringents. In the rectal suppositories it matters but little what the hardening substance is. With vaginal suppositories it is different. There the suppository, and what has remained of it, are allowed to remain until they come away by the natural flux of the mucuous membrane. That is a slow process in most vaginas, and particularly where it carries astringent substances. Where it carries alum, it astringes so that it will hold tight until the flux goes back to its normal condition. Our white wax suppositories are all equally objectionable, and it confirms my judgment, that cacao butter is sufficiently hard for all suppositories for ordinary use, and when a harder is required, it might be left to the physician to order it.

THE PRESIDENT.—There is an instrument on exhibition below, which it is the intention to exhibit, for making suppositories without fusion, simply by pressure and without the admixture of foreign material. If it were thought

proper by the Association, some one, perhaps, would be willing to exhibit it, and make a motion that it be figured for the Proceedings, if thought best.

DR. SQUIBB.—These attempts to form suppositories by pressure have entirely failed in practice with us; that is to say, it is found that the suppositories formed by pressure, no matter how accurately and nicely, and how they may look, that they crumble in the position in which they are intended to be placed. They don't begin to dissolve from the outside and approach the centre, and apply themselves gradually, but at a certain stage they are found to separate and get granulated, becoming very much like suppositories hardened by wax or containing a little water.

DR. PILE.—I have always understood that if cacao butter is mixed with something that melts at a higher temperature, that the alloy will melt at a partial temperature; that the law of fusibility was, that the whole will melt together at a certain mean point.

DR. SQUIBB.—I don't mean to be critical. It is in principle correct, that if you make a mixture of wax and cacao butter or paraffine, it renders the mixture fusible at the mean point between the two fats, if you choose to call them so; but you can, at any time, separate those substances at the difference in their fusing points. A mixture of paraffine with cacao butter will render the melting point of the cacao butter various, in proportion to the paraffine in it, yet when a temperature is applied at which the cacao butter, if alone, would be entirely liquid, and the paraffine solid, there will be an amount of separation. I don't state it on my own absolute knowledge, for I have never performed these experiments; but practically speaking, to all intents and purposes, the mere mixture does not alter the fusing point of the alloy. Dr. Pile makes a mistake in the application of the word "alloy" to it, because it is not "alloy," as applied to metals, but in the ordinary acceptation of the term. Fusible fats, mixed together, can be separated by their fusing points, by the same law that different boiling points are separated by liquids of distillation.

MR. MAISCH.—When fats are fused together they cannot be separated by their fusing points. The fact is, when two fats are mixed together, the fusing point of the mixture is not a mean between the two, but it is entirely different. Mixtures of fats may be obtained having the fusing point lower than either of the ingredients.

DR. SQUIBB.—I made a mistake in the use of terms. I was alluding to paraffine and wax, with fat. They are certainly not fats.

MR. MARKOE.—I have used an addition of spermaceti, at the suggestion of Prof. Parrish. I found it to answer better in my practice. Before that there was a complaint by Dr. Sinclair, of Boston, who uses suppositories very largely, particularly in regard to vaginal suppositories, that when made with pure cacao butter, the fusing of the suppository was too rapid, and he requested me to modify them, so it would be slower. I have not always held to the practice of using one-third spermaceti; sometimes I use only one-fourth. I generally use in winter one-third spermaceti, and in summer a larger proportion.

DR. SQUIBB.—If Mr. Eberle would continue this subject, and let us know what is left of these mixtures at the temperature of the body, I think it would be a very important point to establish.

A paper was read by Mr. G. F. H. Markoe, of Boston, in answer to query 22d, on the use of Permanganate of Potassa for deodorizing Alcohol: the paper was accepted and referred.

MR. MARKOE.—The distillates have a peculiar alkaline odor, due to the decomposition of the permanganic acid and the liberation of the potassa, forming carbonate of potassa with the organic matter present. There were quite a number of experiments in which I re-distilled, but with not advantage enough to pay for the process. My experiments were confined to practical results, because if the apothecary is going to re-distil it, it will not pay. The scope of the question was a pretty narrow one, whether it would pay for the apothecary to rectify the alcohol, and my object was to work in just about the same way that the apothecary would be called upon to work. A large manufacturer can do much better. The rectification with permanganate of potassa does not pay; the better way would be to keep them to use in the same preparations in which they were originally used.

MR. ELLIS.—I have understood that a patent was obtained by a chemist of Boston, many years since, for the use of permanganate of potassa in reference to alcohol. Would the use *ad libitum* of this article in pharmacy interfere with that patent?

MR. MAISCH.—If that patent has been granted for the use of Permanganate of Potassa it would not hold good in law, because the process is perhaps 50 years old. If you refer to Gmelin's Organic Chemistry you will find that somebody proposed, in the Journal de Chimie Médicale, the use of permanganate of potassa for deodorizing alcohol; the very thing that is patented.

DR. SQUIBB.—I would say, in addition to what Maisch has said, that the patent applies, to and is defended upon, the clumsy mode in which permanganate of soda is made for this process. That is the legal technicality upon which the patent is defended. It is an old idea. Atwood's patent depends, for its validity, upon the very bungling way in which they make the permanganate of soda used in the process. Practical alcohol makers, if they were disposed to let out any of their secrets, would tell us that our permanganates, or other means of deodorizing, are more valuable on dilute alcohols than on strong. If Mr. Markoe had diluted it to 30 or 60 per cent., his same quantity of permanganate of potassa would have given him very much better results. My practice has been to dilute these alcohols largely, and none appears to be too dilute for deodorizing by this means, or the more common one of common soap, which is an excellent purifier of alcohols used for fluid extracts. Distilling from an admixture of alcohol with ordinary potash soaps gives alcohol practically free from odor, even from valerian, buchu and those things. Dilute alcohols are far more easily deodorized than strong alcohol, and the best success I have had with mere washes. You are washing a substance with water to get out the last of the alcohol from an exhausted root in the percolator. These

last portions I have been able to purify by the permanganates and other means, very much better than any other.

Mr. Maisch.—Dr. Squibb is perfectly correct. I have followed that process for a number of years, and operated on very large quantities in the laboratory of the U. S. Army. The only difference was that we used to distil this alcohol to get it free from the vegetable material as much as possible, and then rectify it in very large quantities from a wooden still, and thereby we obtained an alcohol which was fit for pharmaceutical preparations. Those alcohols which contained volatile oil of buchu, and other volatile oils, are extremely difficult to purify by permanganate of potassa; they ought to be diluted, and passed through charcoal.

Dr. Squibb.—I want to state the fact that alcohol makers reduce their spirit to 40 per cent. before leaching. They take whiskey and reduce it by the addition of water, and put it in the tanks with charcoal; and those who reduce it most get the best results.

Prof. Parrish answered Query 17, on practical instruction for young pharmacists, by reading an essay, which was accepted and referred.

Mr. Ellis.—That is an exceedingly interesting paper, and one, I think, calculated of great use. There are many young men who have not the facilities of attending our colleges. I hope they will be fewer, but there are oftentimes inquiries made in relation to what are the best means. I have had letters from young men,—strangers, from a long distance,—to know what are the proper and best means to use by which such an one may fit himself for the practice of pharmacy. I am therefore glad to hear that excellent paper read.

Dr. Squibb read a paper, by Mr. F. C. Mussgiller, on valerianic acid, in answer to Query 24, which was illustrated by specimens of the acid, of different specific gravity. The paper was referred for publication.

Mr. Tufts asked to have Query 25 continued to him for another year, his labors as Treasurer having during last year absorbed his time. The request was granted.

The Secretary read three papers written by Dr. S. P. Duffield, in answer to Queries 26, on pyrophosphate of iron; 34, on digitalin in American digitalis; and 40, on the leaves of podophyllum.

Dr. Squibb.—I wish to call attention to the concluding point of the first paper, wherein the writer says he thinks he has not departed from the U. S. Pharmacopœia, while he has changed the whole character of the preparation. It turns out to be citrate of iron and pyrophosphate of ammonia, which he states to be pyrophosphate of iron. When we commence to depart from the Pharmacopœia, we don't know where to stop. I like to try to stick to the Pharmacopœia.

Mr. Maisch.—Is this a departure from the Pharmacopœia any more than Dr. Squibb does, in using strong alcohol for exhausting his rhubarb, instead of partly dilute alcohol, as the Pharmacopœia directs?

Dr. Squibb.—I use the strong alcohol in percolating the rotten root, to be used afterwards as dilute alcohol. Those inferior parts of the rhubarb that were separated from the other were exhausted—not thoroughly—with strong alcohol, with that alcohol that was afterwards used for the dilute alcohol which percolated the part of the root which was better; but the amount of rhubarb percolated by that strong alcohol was not calculated in the result. The fluid extract was calculated on the best part of the rhubarb, and not on the other.

The President.—I understood the Doctor as Mr. Maisch did, and I don't see that he alters the case by his explanation.

Dr. Squibb.—I don't say I never depart from the Pharmacopœia, because if I did not,—if I went into the market and bought anything that was the root of the plant prescribed by the Pharmacopœia, I should be adopting it right straight through. I have no doubt that the garden rhubarb may be used in the fluid extract, and thereby the Pharmacopœia may be fully sustained. The Pharmacopœia does not prescribe that we shall use rhubarb of a given quality, but that rhubarb is the root of the Rheum palmatum, and other species. If we take the root from our own gardens, and make fluid extract, pint for sixteen troy ounces, we are going by the Pharmacopœia, so far as its letter is concerned, at least, and I maintain that I have never done that. I don't wish to say I never depart from the Pharmacopœia; I do it repeatedly, not only in this instance, but in many others. I was going to say that I have used this process that is given in the Pharmacopœia for the pyrophosphate of iron for several years now,—since it was adopted, because I was the author of the process, and proposed it to the Pharmacopœia Committee, and they adopted it. I had used it then for some time, and have used it ever since, and have never had any trouble with the scales. I don't know that I use a single trick that is not given in the process I published. It is not given in the Pharmacopœia, because the Pharmacopœia will not go into details. I urged that more particulars should be put into the Pharmacopœia, so a man could take it up; but it was resisted, and the details were omitted, which I thought were important. I published those details, and have stuck to them ever since. That is individual experience only; I merely give it as such.

Query 35, on the use of yellow wax in ointments, was answered by Mr. Ferris Bringhurst in a paper, which was referred.

Mr. Stearns.—I think that corroborates the remark of Dr. Squibb,—that superabundant purification is detrimental to pharmaceutical products.

Mr. Maisch.—Dr. Hager, of Berlin, a gentleman whom we elected an honorary member of this Association this morning, advocated the use of yellow wax for white wax in ointments for the last fifteen years, and his argument is that the yellow wax, in being bleached, undergoes decomposition similar to rancid-

ity, and that that is the cause of the ointments and cerates made with white wax turning rancid so very rapidly.

MR. SMITH.—As the wax is secreted by the bee, the first honey-combs are nearly or quite white; but in their domestic economy they use a considerable quantity of pollen in cementing the cracks about the hives, and after the comb has been in use for some time it becomes thoroughly covered over with this. If wax is not made out of the first cells, but from the old hives, in preparing it it absorbs coloring matter and odor from this pollen; this imparts the yellow color and the peculiar odor.

THE PRESIDENT.—Have you ever observed hexagonal lines in wax on it after fusion?

MR. SMITH.—No, sir.

Query 3d, on diminishing the taste of Epsom Salt, was, at his request, continued to Mr. Isaac W. Smith.

In answer to Query 36, Dr. Squibb read a paper on Hydrocyanic Acid, which was accepted and referred.

When Query 37 was called for, Prof. Procter rose and said:

That is one of four questions that will be found on the list with my name attached to them. Leaving the country last year, I requested Dr. Squibb to get me excused from all kinds of labor; and he succeeded in keeping me off committees, and things of that kind, but somehow or other these queries—they are old queries—have been continued over. I knew then, and it has proved since, that it has not been at all convenient for me to carry them out. I would be glad if they were left off, allowing me to bring them in as volunteer papers in case I accomplish anything. I have experiments made with several of them, but I have not finished.

Query 39, on the physiological properties of the leaves of Ricinus communis, was called up, when Mr. Heydenreich said:

I cannot report definitely, not having been in a position to obtain cases in which to try the extract. Several physicians have used the extract which I made, and report favorably. Prof. McQuillan thinks in three-fourths of the cases it is successful; others, in half; but not having had cases, I cannot report. If at any time I get facts interesting, I shall bring them forward to the Association.

The President showed a specimen of Ricinus sanguineus, consisting of a branch with some leaves and the seed vessels, and stated that it was a very handsome and showy plant. He also exhibited a specimen of a very large sunflower (Helianthus), the fruit of which came from Cuba, and is said to be used for making the sunflower oil of commerce.

Mr. Markoe made the following remarks on the subject of Query 41, the deposit in wine of ipecac:

I have pursued that subject to some extent, but have not been able to detect any emetia so far. I did not follow it up, because the quantity of precipitate I have obtained has been small. I think the matter is of so little practical importance that it is not worth pursuing.

The following queries, in addition to those previously noticed, received no answer, and were dropped:

5. On Oil of Camphor of Formosa; accepted by H. C. Archibald, of Philadelphia.

7. On Preserving and Dispensing Chlorinated Lime; accepted by Prof. C. F. Chandler, of New York.

9. On Coffee as an antidote to Organic Poisons; accepted by Theobald Frohwein, of New York.

12. On the separation of Tannin from Tinctures and Infusions; accepted by the same.

20. On Practical Tests for the purity of Bromide of Potassium; accepted by Gustavus Krehbiel, of New York.

21. On Carbolic Acid; accepted by Prof. C. F. Chandler, of New York.

23. On Ferri et Potassæ Tartras; accepted by Prof. Bedford, of New York.

27. On Ventilating the Laboratory and Shop; accepted by H. T. Cummings, of Portland, Me.

28. On Commercial Blue Mass; accepted by Prof. P. W. Bedford, of New York.

42. On the use of Acid in making Extractum Conii; accepted by Edward C. Jones, of Philadelphia.

44. On Sulphite of Quinia; accepted by Dr. Thos. E. Jenkins, of Louisville.

45. On Ferri et Potassæ Tartras; accepted by James F. Babcock, of Boston.

Mr. H. W. Lincoln read a paper on the Apothecaries' Coat of Arms, illustrated by drawings and plates, which was referred for publication.

The Secretary read two volunteer papers, one by Mr. Moith, of Fishkill Landing, on Secret Nostrums; the other by Mr. Wm. Saunders, of London, C. W., on Oil of Stillingia, accompanied by several specimens of this so-called oil. Both papers were referred to the Executive Committee.

DR. SQUIBB.—I would like to add to what I have already said on the subject, that adulterations of crystallized carbolic acid are not infrequent in the market, where the name of the maker is omitted. There should be no confidence in it. It can be very much reduced with water, and yet sold as crystallized acid. I have here a specimen which is perfectly solid below 69, but above that it becomes liquid. This, Dr. Thomas J. Turner, of the U. S. Navy, gave me, and I forgot to mention it. Crystallized carbolic acid means nothing without the temperature at which it fuses, because a mixture of it would crystallize all the way down to 42° below.

MR. LINCOLN.—Allow me to make a suggestion from the Committee on Photographs—that is that every person present furnish his photograph to one of the members of the Committee, as it will greatly assist them in their labors; ordinary carte de visite size; and those that have them will please bear in mind to have their autograph at the lower part of the card—not too near the lower extremity, so that it can be seen in the book. Those not present at the meeting will receive circulars in some way with these directions contained therein.

Mr. Alexander C. Peters, of Newark, N. J., was proposed through the Executive Committee for membership. The Chair appointed Messrs. Dalrymple and Heydenreich tellers, who reported the election of the candidate by a constitutional majority.

Mr. Strehl read a paper written by Mr. Frank J. Tourtelot, of Chicago, on Extract of Beef, which was accepted and referred to the Executive Committee.

MR. STREHL.—Having been shown through their laboratory and seen the whole process, I can state that the meat they use is perfectly fresh—direct from the slaughter house.

MR. ASHTON.—This extract of beef is being used in the Pennsylvania Hospital and the Institution for the Blind.

MR. STEARNS.—It has been asserted that nothing but the poorest parts of the beef have been used in making the extract.

MR. STREHL.—I can testify that nothing but the best is used.

MR. MARKOE.—Mr. Ebert made the assertion that it was made from the cheaper parts of the animal, as the choice parts were sold separately and the other parts used.

THE PRESIDENT.—In the old essence the tough ends of beef are directed.

MR. PROCTER.—I would like to ask whether tough beef is any less nutritive than that which is tender; whether the flesh of one part of the ox is really any less nutritive than the sirloin, loin and round?

MR. MAISCH.—I believe Liebig simply directs to take the lean meat, no matter where it comes from.

Mr. Dobbins exhibited a machine invented and patented by Mr.

Nelson, of Troy, for preparing suppositories by pressure, without melting the cacao butter, which, together with the material for medication, is put into a chamber, where it is cut up and mixed, and then forced by means of a piston through a tube if urethral suppositories are desired, or into suitable moulds for vaginal and rectal suppositories.

Prof. Markoe read the title of two papers, on Liquor Bismuthi, and Note on Confection of Senna, which were referred to the Executive Committee.

MR. MARKOE.—A great many papers have been written on liquor bismuthi and the improvement made in the process is the substitution of carbonate of soda, instead of caustic potassa; citrate of bismuth being less soluble in carbonate of soda, and there being an advantage in a pecuniary way in proportion to the cost of the two materials. I also wish to exhibit an improved pill roller and cutter, the invention of one of the students in the firm with which I am connected.

On motion of Mr. Buck, the Pill Roller and Cutter exhibited by Mr. Markoe was directed to be figured in the Proceedings.

Mr. F. Stearns offered the following resolution:

Resolved, That the thanks of the Association are due and are hereby tendered to the retiring officers for their labors during the past year, and to the acting officers for their attention during the sessions.

The question was taken by Dr. J. B. Edwards, and the resolution was carried unanimously.

Mr. Stearns offered the following:

Resolved, That the thanks of the Association are eminently due and hereby heartily tendered to the members of the College of Pharmacy of Philadelphia for the use of their college rooms during the sessions; and that we thank the druggists and pharmacists of this city for their attention and generous care of the Association, and for the kind hospitality to the members and their families during their visit to Philadelphia.

The resolution was passed unanimously with three cheers.

The following resolution was submitted and passed by a unanimous vote.

Resolved, That we thank our highly competent and careful reporter, Mr. James H. Slade, of Boston, for his successful efforts in our behalf, and the several reporters for the public press who have honored us by their notices.

Dr. F. Hoffmann, chairman of the Committee on Specimens, made a verbal report from notes taken during the meeting. On motion of Mr. Jas. T. Shinn, the Committee was allowed to finish the report after the close of the meeting, to be published in the Proceedings.

Professor Procter presented the report of the Committee on Queries, which on motion, was directed to be published.

REPORT OF THE COMMITTEE ON QUERIES.

The following Queries have been prepared and have been accepted by the members during the session, viz :—

QUERY 1st.—An inquiry into the origin, culture, and trade in Rhubarb in China.

Accepted by Henry W. Lincoln, of Boston.

QUERY 2d.—Does the milky juice of the common species of Asclepias possess narcotic or other medicinal properties? (Two years will be required to answer this query, as the season is now too far advanced to collect the juice in its perfection.)

Accepted by Prof. J. M. Maisch, of Phila.

QUERY 3.—What are the best forms for using Celandine (Chelidonium majus, Linn.) in medicine, including its recent juice, with formulæ?

Accepted by Prof. I. J. Graham, of Philadelphia.

QUERY 4th.—What are the best processes for ascertaining the strength of fluid extracts and tinctures containing no alkaloids?

Accepted by Prof. Graham, of Phila.

QUERY 5th.—What is the most eligible process for obtaining persulphate of iron in a dry powder, not objectionable for deliquescence?

Accepted by F. V. Heydenreich, of Brooklyn, N. Y.

QUERY 6th.—Are the extract and fluid extract of Conium of commerce as inert as some recent writers represent, and can these preparations, made by the process of the Pharmacopœia, be depended on?

Accepted by G. F. H. Markoe, of Boston.

QUERY 7th.—Are Sugar-coated Pills of commerce generally as soluble as those of like age kept under ordinary circumstances without coating?

Accepted by John Buck, of Chelsea, Mass.

QUERY 8th.—What kind of glass ware is, on the whole, best adapted to shop furniture—what shapes are most to be preferred for salt-mouthed and tincture bottles, and what kinds of dispensing and prescription bottles are best? With practical remarks on the glass manufacture in its bearings on pharmacy. *Accepted by T. S. Wiegand, of Phila.*

QUERY 9th.—Whence are the Corks of commerce derived, and where are they cut; with general observations on the commerial history of Corks and Cork Wood?

Accepted by P. W. Bedford, of New York.

QUERY 10th.—What strengths of Alcoholic Menstrua are best adapted to the treatment of the offi inal gum resins with reference to producing permanent preparations less incompatible with aqueous dilutents than the present officinal tinctures?

Accepted by Alfred B. Taylor, of Phila.

QUERY 11th.—Which of the preparations of the late edition of the Prussian Pharmacopœia are preferable to like preparations in our own; and what new Drugs and preparations in that standard should be transferred to the U. S. Pharmacopœia, out of regard to the numerous German practitioners in the United States?

Accepted by F. Victor Heydenreich, of Brooklyn.

QUERY 12th.—Gelsemium sempervirens is found to be a valuable remedy in the treatment of nervous symptoms, consequent on the suspension of opium after its habitual use. What forms of preparation and what combinations with opium, if any, will be useful in practice?

Accepted by Dr. J. Manlius Smith, of Manlius, N. Y.

QUERY 13th.—What are the sources of Asphaltum of commerce, now so largely used in roofing, and what uses is it capable of in Pharmacy?

Accepted by G. F. H. Markoe, of Boston, Mass.

QUERY 14th.—How does Pharmacy compare in its emoluments and social advantages with other professions and trades, and what general means, if any, can be adopted to render it more profitable and to regulate the number of its practitioners?

Accepted by Frederick Stearns, of Detroit, Mich.

QUERY 15th.—What are the sources of Bromine in the United States, and what is the extent of its production for the supply of commerce?

Accepted by Charles H. Dalrymple, of Morristown, N. J.

QUERY 16th.—What is the best substitute for Camphor for the protection of woolens from moths and other insects, that will be cheaper and equally effective?

Accepted by G. F. H. Markoe, of Boston, Mass.

QUERY 17th.—In view of the scarcity and high price of Cardamoms, may not Asarum Canadense, Canella alba, Calamus and Ginger be used singly or combined in place of that aromatic in some officinal preparations at the next Revision of the Pharmacopœia?

Accepted by Joseph L. Lemberger, of Lebanon, Pa.

QUERY 18th.—What are the sources of Vinegar made and sold in the United States, and what relation in quantity and quality does the true cider vinegar produced bear to that from other sources?

Accepted by P. R. Hoagland, of Boston.

QUERY 19th.—What is the actual practical power of the Microscope for detecting impurities in commercial powders of drugs?

Accepted by Joseph P. Remington, of Brooklyn, N. Y.

QUERY 20th.—Lycopodium clavatum is said to grow in this country. To what extent is this true, and may the lycopodium sporules be collected from it for the supply of commerce?

Accepted by Prof. J. M. Maisch, of Phila.

QUERY 21st.—What process can be recommended as easy of execution and affording accurate results for determining the percentage of crystallizable alkaloids in cinchona bark?

Accepted by Dr. Samuel P. Duffield, of Detroit.

QUERY 22d.—An Essay on Abies Canadensis and its products yielded to medicine and the arts.

Accepted by William Procter, Jr., of Phila.

QUERY 23d.—On the present sources of supply and the statistics of the indigenous drug trade of the United States.

Referred to C. Lewis Diehl, of Louisville, Ky.

QUERY 24th.—Tapioca is largely substituted by a product made from other feculas. To what extent is this imitation practiced, and what are the natural sources of the fecula?

Accepted by Prof. J. Faris Moore, of Baltimore.

QUERY 25th.—Soluble Pyrophosphate of Iron in scales is observed to become less soluble by keeping. What is the cause of this change, and how may the salt be obtained of constant solubility?

Accepted by G. E. Jeannot of Louisville, Ky.

QUERY 26th.—What are the best practical tests for the purity of Bromide of Potassium?

Accepted by J. F. Llewellyn, of Louisville..

QUERY 27th.—The fusing point of true butter of Cacao being near that of the temperature of the body, what is the influence of such additions as wax, tallow, &c., on its fusing point, and to what extent are such additions objectionable as irritants, if at all, in vaginal and urethral suppositories?

Accepted by Charles L. Eberle, of Phila.

QUERY 28th.—The existence in the dry state of Bisulphite of Soda has been doubted, in contradiction to older observations. Can a dry bisulphite of soda be obtained by any one of the published or some other process? If so, does the salt possess sufficient stability as a medicinal agent?

Accepted by Dr. S. P. Duffield, of Detroit.

QUERY 29th.—Ammoniated Citrate of Bismuth dried in scales has become an article of commerce. What percentage of bismuth does it contain, as obtained from different sources, and by what process can the

largest amount of oxide of bismuth be obtained in this form in soluble condition?

Accepted by J. F. Llewellyn, Louisville, Ky.

QUERY 30th.—Can a pharmaceutical preparation be made from the recent or dried herb of Lactuca elongata, Muhl., which may be used as a substitute for Lactucarium and its preparations?

Accepted by Prof. John M. Maisch, of Phila.

To this list the following queries were added, which, by permission of the Association, were continued to the investigators for another year.

QUERY 31.—What additions to Epsom Salt will diminish its bitter and nauseous taste without materially altering its properties? The answer to be accompanied by samples of solutions made by processes suggested.

Continued to Isaac W. Smith, of Philadelphia.

QUERY 32.—Are the principles in Buchu which are soluble in water and insoluble in alcohol, important medical constituents of the drug, and should they be retained in its pharmaceutical preparations?

Continued to Thomas A. Lancaster, of Philadelphia.

QUERY 33.—From what sources in this country can Metallic Bismuth be obtained, and to what amount are they rendered available?

Continued to Charles A. Tufts, of Dover, N. H.

Dr. W. H. Pile, on behalf of the Committee on Nominations, recommended Mr. Henry W. Fuller, of Chicago, for Local Secretary, who, on motion, was duly elected.

MR. MAISCH.—In justice to the gentleman who has gone to the trouble, I will state that I received a letter from Mr. Herbruger, of Panama, stating that by the same steamer by which the letter was sent, he would send some specimens of Panama drugs to be exhibited here. The drugs are Carana hedionda, Leche de Sande, Cativa de Mangle, and a kind of gutta percha; unfortunately they have not arrived in time to be exhibited; but the good will of Mr. Herbruger to contribute to our knowledge deserves this notice.

It was now moved by Mr. Heinitsh, and carried, that the reading of the minutes of the last session be dispensed with.

The Business Committee moved that the Association now adjourn, to meet again in the City of Chicago, on the first Tuesday of September, 1869, at 3 o'clock in the Afternoon.

The motion was carried, and the Association adjourned.

JOHN M. MAISCH,
Permanent Secretary.

The programme of the Local Committee of Arrangements, aside from the attention paid to the families of the visiting members during the sessions of the Association, included the following:

On the evening of September 8th the new hall of the Philadelphia College of Pharmacy was thrown open to the members of the Association and some invited guests, with their families. The exhibition room was tastefully decorated, and the display of the various articles attracted much attention and critical comments. The room adjoining, which hereafter will be used as a practical laboratory, was filled with a handsome collection of plants, indigenous to the tropical and hot temperate zones of the earth, and most of them being specially interesting from furnishing officinal drugs. In another room tables were spread with refreshments for the company. During the evening Mr. Dillwyn Parrish, the Chairman of the Committee of Ways and Means of the Philadelphia College of Pharmacy, presented to Mr. Thos. S. Wiegand, the Chairman of the Building Committee, a handsome silver pitcher, as a token of the appreciation by the Committee and members of the College of his efficient services in the erection of the new hall.

On Wednesday evening, September 9th, the company assembled again at the hall, where a large number of microscopes were on exhibition. Drs. J. Gibbons Hunt, Horatio C. Wood, J. Tyson and R. S. Kenderdine exerted themselves in behalf of the members and their ladies, to show them some of the beautiful microscopical specimens from their collections.

Thursday evening was set apart for a visit to the Institution for the Blind, where the pupils treated the visitors to a concert, which was highly appreciated.

On Friday afternoon the Association, with their ladies and friends, assembled on board the steamer Twilight, for an excursion tendered to them by the druggists and pharmacists of Philadelphia. The steamer passed down the river Delaware and rounded League Island, to afford the visitors a view of the land presented by the City of Philadelphia to the national government for a navy yard, and particularly of the Monitors and Ironclads now peacefully at anchor in the channels. The "Twi-

light" passed some distance up the river Schuylkill, and then, returning, down the Delaware as far as Fort Mifflin. The upward trip afforded a fine view of the extensive river front of Philadelphia, the city of Camden, N. J., the capacious harbor and the numerous shipping. The steamer proceeded up the river until after nightfall when, nearing Burlington, she turned to bring the party back to Philadelphia. The well known Germania Band was present, and enlivened the occasion with choice selections of music. After night the party assembled in the upper saloon, where a number of humorous speeches were made, during which the Committee presented Mr. William C. Bakes with a gold pen, as a small token of their appreciation of his untiring energy and valuable services in planning and carrying out the arrangements.

The Committee had made ample preparations to meet the physical wants of the company, which parted at about 10 o'clock highly pleased with the entertainment.

JOHN M. MAISCH,
Secretary.

The Committee entrusted with preparing an address to Professor Ehrenberg, have furnished the Secretary with the following copy of the same, which was engrossed in the English and German languages, and sent to Berlin, to be presented to the venerable savant on the fifth day of November:

To PROFESSOR DR. CHRISTIAN G. EHRENBERG, Privy Councillor, &c., Berlin, Germany.

Honored Sir.—The celebration, on the 5th of November next, of the fiftieth anniversary of your promotion to the Doctorate in Medicine, which affords you the rare felicity of a retrospect of a long and praiseworthy life, gives occasion to the scientific and medical associations likewise to take a retrospective view of the great and lasting results which have flown from your earnest researches after the profound in scientific truth, and of the unceasing industry with which you have labored, during half a century, in the cause of Natural History; more particularly, in the exploration of the invisible microcosm, and in the establishment of the evidence of the influence of that organic creation in the development of the present condition of the earth's surface, and on the whole organic life in nature.

Filled with admiration for your numerous researches, for your great success in overcoming the immense difficulties that have beset your pathway, for your just and unbiased discernment, and for the masterly description and graphic representation of your researches and discoveries, the educated of all countries remember you on this your day of honor, and present you their grateful acknowledgements, and their sincere felicitations, that it is accorded to you, in the evening of a life actively dedicated to the investigation of nature, to look back upon the road travelled so illustriously, and to receive the congratulations of your contemporaries.

The American Pharmaceutical Association, uniting the pharmaceutists and druggists of North America in their efforts for the advancement of their profession and of science, at the 7th Session of its 16th annual meeting, held in Philadelphia on the 11th day of September, 1868, has unanimously resolved likewise to present you the felicitations of the entire Association on your day of honor, and has entrusted the undersigned Committee to carry out this resolution. The Committee accomplishes this duty with the greater pleasure, as it has reason to presume that the expression of esteem, veneration and interest will be acceptable from afar, and especially from a country wherein German scientific research has ever been recognized and appreciated, and where German industry and profoundness finds a lasting and beneficent home.

May God preserve and protect you.

Die Feier der fünfzigjährigen Promotion zum Dr. med., welche Sie am 5ten November dieses Jahres begehen und welche Ihnen das seltene Glück gewährt, auf ein langes und gesegnetes Leben zurückblicken zu können, giebt den wissenschaftlichen und medizinischen Associationen Veranlassung, gleichfalls einen Rückblick zu thun auf die grossen und bleibenden Erfolge, welche Ihr geistvolles nach Tiefe und Wahrheit strebendes Forschen und Ihr unermüdlicher Fleiss während dieses halben Jahrhunderts für die Naturforschung und insbesondere für die Erforschung der unsichtbar kleinen Welt, und für den Nachweis der Bedeutsamkeit jener organischen Schöpfung für die Entwicklungsgeschichte der Erde und für das Gesammtleben in der Natur herbeigeführt haben.

Mit Bewunderung für die überaus grosse Anzahl Ihrer Arbeiten, für die glückliche Ueberwindung der ungewöhnlich grossen Schwierigkeiten derselben und für die unbefangene richtige Erkenntniss und meisterhafte Darstellung Ihrer Forschungen und Arbeiten, gedenken die Gebildeten aller Länder Ihrer an diesem Ehrentage und bringen Ihnen Dank sowohl wie Glückwünsche dar, dass es Ihnen vergönnt ist, am Abende eines thatenreichen der Naturforschung gewidmeten Lebens auf die rühmlich vollbrachte Bahn zurückblicken und die Anerkennung Ihrer Zeitgenossen empfangen zu können.

Die American Pharmaceutical Association, welche die Apotheker von Nord-Amerika zu gemeinsamem Streben für Förderung von Beruf und Wissenschaft umfasst, hat auf ihrer sechzehnten Jahresversammlung am 11ten September, 1868, in Philadelphia einstimmig den Beschluss gefasst, Ihnen gleichfalls die Glückwünsche der gesammten Association an diesem Ehrentage darzubringen und hat zur Ausführung dieses Beschlusses das unterzeichnete Kommittee er-

wählt und bevollmächtigt. Dasselbe erfüllt diesen Auftrag mit um so grösserer Freude, als es anzunehmen berechtigt ist, dass dem ebenso bescheidenen wie berühmten Forscher Zeichen der Achtung und Verehrung, und der Ausdruck persönlicher Theilnahme aus der Ferne und aus einem Lande, in welchem deutsche Wissenschaft und Forschung stets Anerkennung und Nachhall, und deutsche Arbeit und Gründlichkeit eine bleibende und segensreiche Stätte gefunden haben, willkommen sein werden.

Möge Gott auch ferner Ihr Hort und Hüter sein!

FREDERICK HOFFMANN, Pharmaceutist in New York,
Chairman of the Committee.
WILLIAM PROCTER, JR., Pharmaceutist in Philadelphia.
JOHN M. MAISCH, Pharmaceutist in Philadelphia.

Countersigned,

EDWARD PARRISH, Pharmaceutist in Philadelphia,
President American Pharmaceutical Association.

Philadelphia, October 11th, 1868.

REPORTS OF COMMITTEES.

REPORT ON THE PROGRESS OF PHARMACY.

Since our last pleasant reunion in the city of New York, science has been enriched by innumerable researches on subjects relating to all its branches. The duty of extracting such portions as may be of interest to the pharmacist and chemist, and the arrangement of these in a classified form, is by our Association allotted to its Committee on the Progress of Pharmacy. Your Committee, impressed with the importance of this duty, have endeavored to make their report as complete as was consistent with the material supplied, and the time its Chairman could devote to it. Notwithstanding that the Permanent Secretary remitted both his private journals, and those belonging to the Association, as fast as received by him, the foreign journals were not received as promptly as last year. It is believed, however, that the report will be as full as those of previous years.

The arrangement adopted in the last report has been adhered to in this. The section relating to *Pharmacy* will be found about as full as usual. Among the most important items in this section may be noted the experiments of Dr. Squibb on repercolation, and his contribution on the pharmacy of the cinchonas.

Materia Medica has been enriched by the contribution of Prof. Henkel on Mexican and Australian drugs; of Von Schroff on Chilian drugs, and of Finckh on oriental opiums.

In *Inorganic Chemistry* perhaps the most important result, from a scientific point of view, is the isolation of *fluorine* by Prat. The improvements in the technical production of oxygen, hydrogen, carbonic acid, white lead, &c.; the recovery of binoxide of manganese from the residual liquors in the manufacture of bleaching powder; and the formation, examination and descrip-

tion of various salts of the rarer metals, such as thallium, tungsten, molybdenum, &c., all merit special attention.

The results in *Organic Chemistry* contribute largely to our knowledge of the cyanogen compounds, for which we are chiefly indebted to W. Skey and I. Phillip. The researches of Grimmaux on the gallic acids; Van Tieghern on the gallic fermentation; Dragendorff and Masing on the compounds of cantharidine with bases; Rennard on hyoscyamia; Schieff on boric ethers; Rochleder on the proximate constituents of Æsculus hippocastanum and Pyrus malus; Kubly on those of rhubarb; Rembold on those of tormentilla; Haussknecht on erucic acid and its derivatives; and the numerous experiments on the alcohols and hydrocarbons, tend to place the past twelve months among the most fruitful in scientific results.

By the dispensation of Providence, a number of the brightest lights in the scientific world have by death been removed from our midst. Foremost among these may be mentioned Faraday, Guibourt, and Sir David Brewster.

The report has been compiled from the following periodicals:

American Journal of Medical Sciences,	*A. J. Med. Sc.*
American Journal of Pharmacy,	*A. J. Ph.*
American Druggists' Circular,	*A. D. Cir.*
Pharmaceutical Journal and Transactions,	*Ph. J. Trans.*
Dental Cosmos,	*Dent. Cos.*
Chemical News,	*Ch. N.*
Annalen der Chemie u. Pharmacie,	*Ann. Ch. Ph.*
Journal für praktische Chemie,	*J. p. Ch.*
Chemisches Centralblatt,	*Ch. C. B.*
Archiv der Pharmacie,	*Arch. Ph.*
Neues Jahrbuch f. die Pharmacie,	*N. Jahr. Ph.*
Neues Repertorium f. die Pharmacie,	*N. Rep. Ph.*
Vierteljahresschrift für Pharmacie,	*Viert. Jahr. Ph.*
Pharmaceutische Zeitschrift f. Russland,	*Ph. Z. Russ.*
Sitzungsberichte d. Akademie d. Wissenschaften, Wien,	*Wien Ak. Ber.*
Sitzungsberichte d. Akademie d. Wissenschaften, München,	*Munch. Ak. Ber.*

OBITUARY.

Brewster.—Sir David Brewster, the great natural philosopher, died on the 10th of February, 1868, in the 86th year of his age.

Daubeny.—Prof. Daubeny, a distinguished botanist, died on the 12th of December, 1867, in the 72d year of his age.

Davy.—Dr. John Davy, the brother of Sir Humphrey Davy, died on the 24th of February, 1868, in the 78th year of his age.

Faraday.—Michael Faraday, the great English chemist, died on the 25th of August, 1867, in the 76th year of his age.

Guibourt.—Nicholas John Baptist Gaston Guibourt, the distinguished French pharmacien, died on the 22d of August, 1867, in the 77th year of his age.

Herapath.—Wm. Herapath, F.R.S., the distinguished toxicologist, died on the 13th of February, 1868, in the 73d year of his age.

Matteucii.—Prof. Matteucii, a prominent Italian philosopher, died in Florence during July, 1868.

Mawson.—John Mawson, a member of the Pharmaceutical Society of Great Britain, was accidentally killed by an explosion of nitro-glycerine at New Castle on Tyne, during the latter part of December, 1867.

Mayer.—Dr. E. Mayer, a prominent member of the South-German Apothecaries' Association, died on the 17th of December, 1867.

M'Culloch.—William M'Culloch, one of the founders of the Pharmaceutical Society of Great Britain, died on the 1st of October, 1867, in the 77th year of his age.

Page.—Prof. Charles G. Page, the author of many important discoveries in electro-magnetism, died in Washington, D. C., on the 5th of May, 1868.

Procter.—Dr. Stephen Procter, a graduate in pharmacy, and brother to our fellow member, Prof. Wm. Procter, died on the 26th of March, 1868, in the 55th year of his age.

Randal.—Edward Mayor Randal, a distinguished English apothecary, died at Southampton on the 7th of August, 1867.

Richardson.—Dr. Thomas Richardson, favorably known as an author on chemical technology, died on the 10th of July, 1868.

Rosse.—The Earl of Rosse, of astronomical fame, and one of the ex-Presidents of the Royal Society of Great Britain, died on the 31st of October, in the 67th year of his age.

Shumard.—Dr. George Getz Shumard, a distinguished geologist, died in 1867, aged about 42 years.

Vogel.—Heinrich August von Vogel, senior of the Munich Academy of Science, died on the 24th of November, 1867, in the 89th year of his age.

Warrington.—Richard Warrington, F.R.S., a prominent English chemist, died on the 12th of November, 1867, in the 60th year of his age.

Zchensner.—Franz Zchensner, a member of the South-German Apothecaries' Association, died on the 17th of December, 1867.

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It is I. A book for every man; a companion to *Why not.* Horatio R. Storer, M. D. Boston, Lee & Shepard.

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course of; delivered at the University of Pennsylvania, &c., &c. Joseph Carson, M. D. Philadelphia, Henry C. Lea. 4th edition. 1867.

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Plastics; a new Classification and brief Exposition of Plastic Surgery. David Prince, M. D. Philadelphia, Lindsay & Blakiston.

Proceedings of the American Pharmaceutical Association at its 15th Annual Meeting, held in New York, Sept. 11th, 1867. Philadelphia. 1867. Pp. 453.

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Report of the Commissioner of Agriculture for the year 1866. Washington, Government Printing Office. 1867.

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Agricultural Chemistry. Alfred Sibson. London, Rutledge.

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Elements of Chemistry, theoretical and practical. Wm. Allen Miller. Part 1. Chemical Physics. 4th edition, with additions. London, Longmans.

Elements (The) of Natural Philosophy; an introduction to the study of the Physical Sciences. Charles Brooks. London. Churchill & Sons. 1867.

Gas Manipulation. Henry Bannister; enlarged by Wm. T. Sugg. London, Henry Sugg.

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Prescriber's Companion. 2d edition. Much improved and greatly enlarged. Alfred Meadows. London, Renshaw.

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Principles of Chemistry, founded on modern theories. M. Naguet. Translated from the second edition by Wm. Corlis. Revised by Thomas Stevenson. London, Renshaw.

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Considérations sur la pulvérisation de l'éther. M. A. Horaud. Lyon, Vingtrinier.

Coup d'œil sur l'anesthésie locale au moyen de la pulvérisation de léther. G. Martin. Montpellier, Boehm et Fils.

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Essais de classification chimique. M. L. Méhay. Clichy, Loignon et Cie.

Etudes sur les médications arsenicale et antimoniale, et sur les maladies du cœur. L. Papillaud. Paris, Baillière et Fils.

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Plan einer chemischen Lehrmethode für Industrielle. Dr. E. Meitzen. Leipzig, E. H. Mayer.

Ricinusoelsäure, Ueber die Abkömmlinge der. K. Ulrich. Göttingen, Vandenhoeck & Ruprecht.

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Wärmecapacität (Ueber die) der Schwefelsäurehydrate. Dr. L. Pfaundler. Wien, Gerold's Sohn.

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DUTCH PUBLICATIONS.

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Verhandeling over het therapeutisch gebruik van den Alcohol. Dr. Arthur Legras. Uit het franch vertaald door Dr. C. P. ter Kuile. Tiel, H. C. A. Campagne.

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Rivista farmaceutica italiana, diretta dal dott. Mich. Baucheri. Anno v. Genova, S. Agostino.

Sperimenti eseguiti col liquido emostatico balsamico. S. Capodicci. Firenze, lib. Franco-Italiana.

Sulla natura del principio astringente della Noce di Galla e le sue combinazioni col Solfato di Ferro. F. Garofoletti. Milano, G. Bernardoni.

Sulla produzione dell' Acido Borico dei Conti De Larderel. C. Meneghini. Pisa, Nistri.

Sulla composizione chimica dei legumi; seconda memoria. P. Stefanelli. Firenze, Cellini e Comp.

Sunto delle lezioni di chimica. Dispensa iv. P. Tassinari. Pisa, Pieraccini.

PHARMACY.

APPARATUS.

A new Apparatus for the technical analysis of *petroleum* and kindred substances is described by S. F. Peckham, in Ch. N. Oct. 18, 1867.

A Simple Apparatus for illustrating the manufacture of *sulphuric acid*, has been contrived by a correspondent of the Ch. N. and is described and illustrated in No. 396, (July 5, 1867,) of that journal. It consists of a wide mouthed bottle, through the cork of which three tubes are passed. To the larger

one a pint funnel is attached, which is covered by a lid from which a small cup is suspended for burning the sulphur in; the centre tube admits atmospheric air, and the third tube is connected with a small test tube, in which NO_2 is generated from NO_5 and copper turnings.

A New Aspirator is constructed by J. Landauer, based upon the principle of the syphon. It consists of a capacious flask, hermetically closed by a cork provided with two holes, one of which receives a glass tube for connecting the aspirator with the apparatus through which it is desirable to pass a current; the other receives the syphon. By connecting the apparatus with two of these aspirators, and keeping one closed until it is desirable to refill the other, a continuous current may be kept up. Ch. N. Mar. 20, 1868.

Burrettes. Wittstein recommends a modification of Mohr's burrette, which consists in closing the upper orifice with a plate of glass, ground so as to fit it accurately; the joint is made perfectly tight by coating the edge of the burrette and the plate with a little grease. The contrivance answers the purpose admirably, and avoids the trouble frequently occasioned by glass stop cocks or the clamps and india rubber tubing. Viert. Jahr. Ph. xvi, 567.

Filtering Papers of commerce, according to the experience of Kruger, frequently contain considerable quantities of sulphate of lime, and it is frequently sufficient to pass the same distilled water through the filter several times to obtain a distinct indication of its presence by nitrate of baryta. The author regards it as highly important to guard against and test for its presence. A. J. Ph. xl, 332.

A Fomenting and Vapor Bath, the invention of Mr. R. H. Bollans has been introduced to the Br. Ph. Conf. by Mr. Reynolds. It is minutely described, and illustrated in Proc. Br. Ph. Conf., 1867, p. 39, and appears to be a very useful contrivance.

Glass Vessels for chemical researches, unless made of refractory Bohemiam glass, will not resist the action of hot nitric or hydrochloric acid. As it is difficult to get large vessels of the desirable quality of Bohemian glass, Prof. Stas has instituted

a series of experiments, which lead him to the conclusion that a glass having for its basis sodium and calcium, instead of potassium and calcium, will resist the action of acid as completely as the latter, and may be blown into vessels of any dimensions desirable. Ch. N. Jan. 3, 1868.

The Liquometer, a new alcoholometer, the invention of M. M. Musculus, Valson & Cie, is illustrated and described in Proc. Br. Ph. Conf., 1867, p. 24, by Mr. Reynolds. It consists of a capillary tube graduated so as to indicate alcoholic liquids up to 20 per cent. strength. Its action depends on capillary attraction, the heavier liquid being retained at a higher point in the tube, after being once drawn up, than a lighter liquid. As yet it can only be used for pure alcoholic liquid, and when they are above 20 per cent. they must be reduced to below that strength according to estimate. The instrument can be adjusted over an ordinary tumbler, as it is supported by a wooden bridge, through which it strides up and down as required, to reach accurately the surface of the liquid. Ph. J. Trans. ix, 171.

Poison Bottles. Mr. Moith recommends that poison bottles be coated on the neck and shoulders with an asphaltum varnish, prepared by dissolving a few ounces of finely powdered asphaltum in a pint of benzole (not benzine). This, without destroying the symmetry of the shop, is all sufficient to attract the attention of the dispenser to the poisonous character of the contents. Proceedings, 1867.

A Steam Generator for pharmaceutic purposes has been devised by Dr. Riekher. The apparatus is constructed in the form of an upright cylinder, which forms a jacket around the flue and part of the fire-place of the furnace. The heating is effected very rapidly by the aid of nine copper tubes of 2″ diameter, arranged in threes crosswise, and connect one side of the jacket with its opposite. These being always filled with water, and exposed to the direct action of the fire, absorb heat very rapidly. The apparatus, as illustrated and described in N. Jahr. Ph. xxvii, 257, appears to be very practical and capable of being constructed at a comparatively small expense.

PROCESSES.

Qualitative Analysis, without the use of HS or sulphide of ammonium is proposed by Lettnow, according to the following course:

1. HCl precipitates Pb, Hg, and Ag.
2. SO_3 precipitates Pb, Ba, Sr, Ca.
3. BaO, HO, sets free NH_3 and the filtrate is tested for Na or K.
4. Zn is added to filtrate from 2, the H ignited and tested for As and Sb; Sn, Hg, Cu, Cd, and Bi are precipitated.
5. Carbonate of baryta precipitates from filtrate 4. Fe, Cr and Al.
6. Carb. Ammon. precipitates from filtrate 5. Mn and Ca. The filtrate is tested for Mg and Ni.
7. Zn, is tested for in the original solution.

Pogg. An. cxxx, 324. Ch. N. July 26, 1867.

A new method of Organic Analysis has been applied by Mitscherlich. Oxygen and hydrogen are determined together by heating the substance to be analysed in a current of chlorine, passing the products of combustion over red hot charcoal, and respectively absorbing the HCl, CO_2 and CO formed, by saturated solutions of nitrate of lead, hydrate of potassa, and chloride of copper in hydrochloric acid. Cl, Br, I, and S, are determined simultaneously with C and N, by volatilizing the substance in a current of H, burning the mixed gases and vapors with O, removing the water by means of SO_3 and collecting the products of combustion in weighed vessels, with the exception of N, which is measured. Pogg. An. cxxx, 536. Ch. N. July 26, 1867.

Spectrum Analysis, with its application to *astronomy* is the subject of four lectures delivered before the Royal Institute of Great Britain, and published in Ch. N. July and Aug, 1867.

Elementary Organic Analysis of bodies containing only C, H, and O, is recommended by F. Shulze, to be conducted by burning the body with chlorate of potassa, in a sealed tube (previously exhausted). The carbon is oxidized at the expense of the oxygen from chlorate of potassa, and the CO_2 formed is collected in potassa solution. If the carbon absorbs its proper amount of

O, and the body is a compound corresponding to a hydrate of carbon (C, HO), the gaseous material obtained is exactly equal to the amount of O supplied by the chlorate used. If more gas is found it is because the body contains more O than is needed to burn all its H; if less, because it contains less O than is required to burn the H. From these data the author readily calculates the composition. Ch. N. Jan. 3, 1868.

E. H. v. Baumhauer contributes some new ideas on elementary analysis, and illustrates and describes the apparatus required by his method. The author endeavors to solve the problem of determining in organic bodies C H O and even N, quantitatively, from one and the same quantity of material, by a single operation. J. p. Ch. ci. 257.

Volumetric Analysis. Prof. Wolcot Gibbs, of Harvard University, proposes a new general method for volumetric analysis, for which see A. Jour. Arts and Sc., and Ch. N. Mar. 27, 1868.

Test for free Acid. E. Smith recommends a solution of chloride of silver in just sufficient ammonia to make a clear liquid. When a little of this solution is added to a liquid containing but a trace of free acid, it will produce cloudiness. Ch. N. Mar. 13, 1868.

(Before applying this test it will be necessary to test the liquid with ammonia, to guard against the presence of compounds which would give precipitates with free ammonia. C. L. D.)

Litmus Paper. Vacher recommends the following receipt for preparing litmus paper, which he states is in every respect satisfactory: Digest 20 grm. litmus with 100 C. C. water for some time, shaking occasionally; filter, add NO_5 in slight excess and boil; then neutralize exactly with potassa. Now make a weak solution of gelatine by boiling 1 p. isinglass with 50 p. water; draw white blotting paper through and hang it up to dry. When dry paint one side with the litmus solution. Ch. N. June 5, 1868.

The Microscope in its Crystalographic Application. Mr. W. W. Stoddart, in a paper read before the Br. Ph. Conf., (see Proc. 1867, p. 26,) gives some valuable hints on the use of the microscope inits application to analysis.

Blow-pipe Experiments. J. Landauer, in continuation of his experiments on the use of *chlorate of potassa* in blow-pipe experiments, is convinced that the salt may be used with advantage for the detection of many oxides by means of the blow-pipe, inasmuch as it leaves nothing to be desired as regards the delicacy and readiness of execution. The action is of course that of energetic oxidation. The author finds it convenient to use glass tubes, not too thick, about 15 centimetres long and 5 millimetres in width, closed at one end. The substance is introduced with the chlorate, heat is gradually applied and augmented with the blow-pipe until no more oxygen is given off. The substance is then determined by the color of the flux, which from iron is flesh-colored, lead yellowish-brown, copper black or grayish-black, cobalt blue (in certain instances black), manganese purple and from nickel black. Ch. N. Aug. 30, 1867.

Crystallization by means of the Blow-pipe. Rose finds that the opaqueness frequently assumed by blow-pipe beads on cooling is due to crystalline formations. He prepares them for microscopic examination either by flattening out the bead, or removing the soluble matter with water. Ch. C. B. July 10, 1867, Ch. N. Feb. 28, 1868.

The subject is attracting considerable attention in the scientific world, and metallic beads from various metals are thus examined and commented upon by numerous writers.

Prevention of Concussion in Distilling. Dr. Pellogie prevents concussion in distilling by inserting through the tubulure of the retort a wide glass tube, which reaches to near the bottom of the retort, and at its upper extremity is bent at right angles and drawn out to capillary diameter. Communication of the external air is thus established with the air of the interior of the boiling fluid, which prevents the sudden creation of vapor. The author, has by means of this apparatus, distilled anhydrous methylic alcohol and sulphuric acid, without the production of sensible concussion. Zeit. An. Ch. A. D. Cir. xii. 60.

Dessication of Glutinous Substances. Reischauer states that glutinous substances are best dried, and their form preserved, if placed in a shallow vessel upon the surface of ether contained

in an air-tight vessel, the bottom of which is covered with chloride of calcium or burned lime, &c. The ether withdraws the moisture from the substance and again yields it to the chlor. calcium, and this interchange continues until the substance is perfectly dry. Gum, precipitated from its aqueous solution by alcohol, yields a dry amorphous powder, while the various organs of plants dry very rapidly and are preserved in their natural color. Skin dried by this process acquires extraordinary flexibility. Zeit. An. Ch. A. D. Cir. xi. 233.

Filtering through Sand and Glass in quantitative analysis has been applied with the best results by E. R. Taylor, who recommends it highly, and preferable to the use of paper filters. J. p. Ch. ciii. 395.

Repercolation. Dr. E. R. Squibb has instituted a series of experiments on the cinchonas, to determine the availability of repercolation as a method of economizing alcohol in the exhaustion of drugs. The results are detailed in a paper read before the Association at its last sitting. See Proc. 1867.

Experimental Chemistry. G. Merz contributes quite a number of items on experimental chemistry for lecture purposes, which will be found in J. p. Ch. ci. 261.

Preservation of Crystals. Benzole is an excellent medium for preserving fine crystals, as most saline compounds are insoluble in it, and the benzole being very volatile, they will dry rapidly when removed from it. If benzole is objectionable, many crystals may be preserved by immersion in fine olive oil for several hours, draining, wiping with a soft piece of cambric and introducing into a bottle. Sulphate of soda thus treated, may be exposed to the air for weeks without effloresecing. A. D. Cir. xi. 248.

Oxidation by means of Charcoal. Recently burned charcoal, after saturation with oxygen, has the power of converting SO_2 into SO_3, alcohol into acetic acid and fusel oil into valerianic acid, according to a communication to Lond. Chem. Soc. A. D. Cir. xi. 207.

Chinese Cement is prepared, according to an authority in J. App. Ch., by macerating in a bottle 1 lb. of the finest pale

orange-colored shellac in 2 lbs. alcohol 95 p. c., until dissolved, or by dissolving 6 oz. of shellac by boiling in one and a half pints of water, containing 2 oz. of borax, and evaporating to the consistence of molasses. Dent. Cos. ix. 280.

Cement. An excellent cement is obtained by dissolving 1 p. of melted amber in 1½ p. sulphide of carbon. The edges of the article to be mended are simply coated and pressed together, when it will adhere perfectly; it dries rapidly. Ch. C. B. Feb. 5, 1868.

Cement for Metals. An excellent cement for metals is obtained by triturating equal parts of ZnO, PbO SO_3, Mn O_2, and Fe_2 O_3, until an impalpable powder is obtained, and bringing it to a proper consistence with linseed oil varnish. Ch. C. B. Feb. 26, 1868.

Elastic and Sweet Glue. Good common glue is dissolved in water, evaporated to a thick consistence, mixed with its weight of glycerine, heated until the water is entirely driven off, and moulded on a marble slab. This mixture answers for stamps, printer's rollers, &c. For *sweet glue*, a small amount of sugar is added. A. D. Cir. xii.

Liquid Glue. Knapf prepares a strong liquid glue by macerating 3 p. of good glue, in fragments, in 8 p. of water, for several hours, adding ½ p. of chlorhydric acid and ¼ p. of sulphate of zinc, and exposing the whole for 10 to 12 hours to a temperature of 178° to 189° F. This mixture is permanent, remains liquid, and forms an excellent paste. A. J. Ph. xl. 330.

Aniline Inks are prepared, according to Fuchs, by dissolving 15 p. dry aniline (either red, blue, green or yellow) in 150 p. strong alcohol and 1000 p. distilled water, in a porcelain-lined vessel by the aid of gentle heat, until the odor of alcohol is dissipated, and adding a solution of 60 p. gum arabic in 250 p. water. A. J. Ph. xl. 332.

Indelible Ink is made with *aniline black* by Dr. Jacobson as follows:

I. *Solution of Copper.* Dissolve 8·52 grm. crystallized chloride of copper, 10·65 grm. chlorate of soda, and 5·35 grm. muriate of ammonia, in 60 grm. distilled water.

II. *Solution of Aniline.* Dissolve 20 grm. chlorohydrate of aniline in 30 grm. of distilled water, and add to it 20 grm. of a solution of 1 part gum arabic to 2 parts of water. and 10 grm. glycerine.

III. Mix 4 parts of II with 1 part of I, as wanted.

A green liquid is formed, which may be applied with pen, pencil or brush. It is to be mixed as wanted only, as it changes in the course of two or three days. A. J. Ph. xl, 335.

Aniline-black Varnish, which, when applied to a white object, renders it jet-black, is one of the latest Parisian productions, and is prepared by dissolving, in a litre of alcohol, 12 grm. of aniline blue, 3 grm. of fuchsine, and 8 grm. of naphthaline-yellow. The solution may be filtered, and is permanent, while the individual colors are not destroyed, and may be again separated on analysis.

A new photographic varnish is recommended by Grasshoff for coating albuminized prints, as preferable to the ordinary negative varnishes usually employed. 5 p. of finely powdered sandarac is put into a vessel with 20 p. of absolute alcohol, and when the resin has been entirely dissolved by agitation, 2 p. of Venice turpentine is added. When this is dissolved, 1½ p. of oil of lavender or turpentine, and 1½ p. of powdered camphor are added, and when dissolved filtered. If the varnish should not give the desired lustre, a further quantity (from ½ to 1 p.) of sandarac may be added. A. J. Ph. xxxix, 449. A. D. Cir. July, 1867.

Animal fats are purified and rendered inodorous for a long time, according to Hirtzel, by mixing the recently melted fat (14½ lbs.) with table salt (5 drachms) and powdered alum (15 grains), and heating until a scum forms on the surface. The scum is separated, and when the fat has cooled it is thoroughly washed with water to remove the salts, and then heated gently until all the water is evaporated. A. J. Ph. xl, 334.

Metals are prevented from rusting when dipped in very dilute NO_5, afterwards immersing in linseed oil, and allowing the superfluous portion to drain off. When the coating is perfectly dry the article is ready for use, and thus protected will remain bright for years. J. App. Ch. Dent. Cos. ix, 280.

Vitrifying Iron Surfaces. A new method has been introduced in Paris, which consists in laying the material for a very fusible glass on the iron surface, heating to redness, and keeping up the temperature until complete vitrification results. The surface of the iron becomes oxidized, the oxide combines with the glass, and thus forms one substance. The coating may be thick, but is preferably thin, as in the latter instance it lasts much longer. A. D. Cir. xi, 249.

The utilization of the waste products from the manufacture of Coal Gas is the subject of an essay by Dr. Lethby, which runs through several numbers of the Ch. N., July and Aug., 1867.

The utilization of Peat for the production of gas and lubricants, and, as by products, of acetic acid, pyroxylic spirit and ammonia salts, is the subject of an interesting paper by Dr. H. Vohl, in Ch. C. B. July 17, 1867.

The influence of a current of Gas on the decomposition of Compounds. D. Gernez states that when a current of an indifferent gas, such as N, H or atmospheric air, is passed through solution of bicarbonate of potassa, lime or baryta, CO_2 is given off. Sulphhydrates of the alkalies under the same conditions lose hydrogen, and acid sulphites and acetates are converted into neutral salts. These phenomena of decomposition are considered due to dessication. Compt. Rend. lxiv, 606. Ch. N. Aug. 9, 1867.

New Explosive Mixtures. Ehrhardt has patented the following new explosive mixtures:

Blasting Powder. Chlor. potassa 1 p., nitr. potassa 1., tannin or cachau 2 p., charcoal 4 p.

Artillery Powder. Chlor. potassa, nitr. potassa, tannin, of each equal parts.

Powder for Shells. Chlor. potassa, tannin, equal parts. A. D. Cir. xi, 223.

CAUTERIES.

Black Caustic of Velpeau is prepared by triturating powdered licorice root with sufficient sulphuric acid to give it a pasty consistence. Jour. Chim. Méd. A. J. Ph. xxxix, 418.

Lunar Caustic. The ends are best enveloped in a film of collodium, which is obtained by pouring collodium on a glass

plate, and wrapping the ends of the cylinder with it as soon as it is dry enough to be touched; it is then fastened with a little fresh collodium. Viert. Jahr. Ph. xvii, 68.

CERATES, OINTMENTS, &C.

Mr. W. L. Scott recommends the use of bisulphite of lime for the preservation of ointments, which he has found to keep perfectly when a small quantity of the salt was added in the form of strong solution. Proc. Br. Ph. Conf. 1867, p. 43. Ph. J. Trans. ix, 189.

Benzoinated Ointments. Mr. T. Doliber, in continuation of his experiments on this form of ointments, finds the preservative properties of benzoin to be almost universal to ointments and cerates. Proceedings, 1867. A. J. Ph. xl, 33.

Camphorated Soap is prepared by Calmberg by intimately mixing a concentrated solution of camphor with powdered soap, and kneading to the proper shape on a tile. It is formed into 30 grain tablets, and wrapped in tin foil. Viert. Jahr. Ph. xvii, 68.

Glycelæum, a new basis for ointments, is proposed by Mr. T. B. Groves, by triturating together ½ oz. oil of almond meal (from oil cake), 1 oz. glycerine, and 3 oz. olive oil. It will form a soft semi-gelatinous paste, which, when mixed gradually with water or a watery fluid, readily forms an emulsion. As it remains unaffected by the ordinary temperatures of the body, there are no objections to its softness, which, in fact, is an advantage, as it leaves plenty of room for powdery admixture of every kind. Proc. Br. Ph. Conf. 1867, 31. Ph. J. Trans. ix, 177.

Ointment for Neuralgia of Dr. Gray. Tinct. aconite, chloroform, of each 5 p., lard 20 p.; mix. After applying the ointment the parts are covered with cotton. A. J. Ph. xxxix, 417, from J. Chim. Med.

Vermin Ointment (Dr. Hager). Quiniæ sulph. 12 p., acidi muriat. 2 p., adipis 200 p. A. D. Cir. xii, 181.

Vulnerary Ointment (Guérit-tout des Anciens) of Perrel. Arnica flowers 50 p., flowering tops of St. Johnswort 25 p., vervain 15 p., lard 800 p. J. Chim. Med. A. J. Ph. xxxix, 417.

CONFECTIONS, LOZENGES, &C.

Confection of Cinchona and Sulphur, of Dr. De Smet. Powd. cinchon., flowers of sulphur, of each 10 grm., syrup of marshmallow q. s. Used in chronic bronchitis, in teaspoonful doses, four times daily for two or three weeks. J. Chim. Med. A. J. Ph. xxxix, 417.

Confection of Senna. If the powdered senna is boiled for some time in water, before the addition of sugar, pulp, coriander, &c., it will keep for a long time without fermenting, according to K. Calmberg. Viert. Jahr. Ph. xvii, 67.

(It is well known that the active principle of senna is almost entirely destroyed when exposed to the temperature of boiling water, and recent experiments of Kubly establish this fact beyond controversy. Your reporter has always obtained a permanent preparation by following the officinal process. When large quantities of this confection are made, it is well to keep the properly concentrated pulp, and the mixed powders of senna and coriander, in separate vessels, and to mix them in the appropriate proportion as wanted. C. L. D.)

Electuary of Sulphur. Sulphur 30 p., cream of tartar 15 p., white honey 90 p. Used in habitual constipation in teaspoonful doses, once or twice a day. A. J. Ph. xxxix, 418.

Pasta gummosa. Döbele prepares this very readily, and with uniform success, by dissolving 2 lbs. of gum arabic in 4 lbs. of water, and introducing it into a bright brass kettle. 2 lbs. of finely powdered sugar and the whites of 12 eggs are then added, the kettle is placed upon a moderate fire, and the mixture vigorously stirred, *without intermission*, for from forty-five to fifty minutes, or until the mass becomes of the proper consistence. Before pouring the mass out it may be flavored with 1 drachm elæosaccharum neroli. N. Jahr. Ph. xxvii, 205.

Lozenges of Proto-Carbonate of Iron with Cacao. Dr. Riekher recommends that 145 grains of pure crystallized proto-sulphate of iron be dried at a moderate temperature until the residue weighs about 120 grains. This is then mixed intimately with 120 grains dry bicarbonate of soda, and 3½ ounces of dry

powdered sugar, and the mixture thus obtained is incorporated with 3½ ounces of cacao, melted at a moderate temperature. 60 tablets are formed, each representing 1 grain of pure carbonate of protoxide. N. Jahr. Ph. xxviii, 14.

Santonine Lozenges. According to Guyot Dannecy, santonine lozenges should be prepared with santonine in crystals, as those prepared with powdered santonine are very bitter and disagreeable, while those prepared with crystals are tasteless. A. J. Ph. xl, 330.

DISTILLED AND MEDICATED WATERS.

Aqua Nicotianæ. Dr. J. S. Unzicker gives the following formula: Take of fresh green tobacco leaves eight pounds, cut them and add alcohol 1½ pound; water q. s.; mix, and distil eight pounds. The leaves should be collected just before the plant begins to bloom, and should then be worked up as soon as possible, for when they once become spotted the preparation assumes the poisonous effects of dried tobacco, which is not the case if prepared from fresh leaves. It is one of the remedies originally introduced by the German physician Dr. Rademacher, and the author recommends it highly in the first stages of pneumonia. Dose ½ to 1 fluid-drachm. Cin. Lancet, March, 1868. A. J. Ph. xl, 251.

Carbonic Acid Water. Hager proposes that carbonic acid for carbonic acid water, if prepared from marble dust or whiting, be first passed through a weak solution of subsulphate of iron, and then successively through solution of carbonate of soda and permanganate of potassa, by which treatment all the odorous sulphur and organic compounds are removed. Ph. C. H. Ch. C. B. March 11, 1868.

DECOCTIONS.

Decoctum Sarsaparillæ Co., U. S., is made by macerating the ingredients in cold water for 12 hours, previous to boiling. In answer to query 6, whether maceration at 200°F. for two hours would be a judicious alteration, Mr. Wm. Saunders gives the affirmative. Proceedings 1867.

ELIXIRS.

Elixir Calisayæ and Elixir Calisayæ ferratum. Formulæ for these preparations are offered in A. J. Ph. xl, 104, by C. Lewis Diehl, according to which the cinchotannic acid is removed by hydrated sesquioxide of iron, furnishing elixirs which can be mixed with ferric salts without suffering decomposition.

Elixir Cinchona, Iron and Bismuth. H. F. Meier suggests that an elixir calisaya be prepared from 8 oz. calisaya bark, 4 oz. each of cinnamon, orange peel and coriander, and ½ oz. each of anise, cardamom and caraway, by displacement with a mixture of 3 pints of alcohol, 3 pints of whiskey, and 9 pints of water. The elixir thus produced is deprived of its tannic acids by shaking it with hydrated sesquioxide of iron from ½ pint of solution of sesquichloride of iron (prepared according to the formula for tinct. ferri chlor.), and when filtered is mixed with 2 pints of simple syrup, 2 oz. of pyrophosphate of iron, and 2 oz. of citrate of bismuth, dissolved in q. s. citrate of ammonia. It is again filtered and will make about 2 gals. A. D. Cir. xl, 210.

A similar elixir is prepared by the authority of the Medical and Pharmaceutical Associations of Washington, D. C, by dissolving 4 drachms of citrate of bismuth and ammonia in 3½ fluidounces of distilled water, adding a slight excess of ammonia; then dissolving in the solution 2 drachms of citrate of iron and ammonia and adding 8 fluidounces of ferrated tincture of cinchona, (see tinctures in this report), 4 fluidrachms tinct. cardamom, 4 fluidounces of syrup of orange peel. A. J. Ph. xl, 237.

Elixir Chloroformi is prepared, according to the same authority, as follows: Chloroform, tinct. opii, tinct. camphoræ, spts. ammoniæ arom., of each one fluidounce and a half, ol. cinnamomi 20 min., brandy 2 fluidounces. Dose, half a fluidrachm or less. Ibid, 238.

Elixir Ferri Pyrophosphatis of the Washington Pharmaceutists is prepared by dissolving 320 grains of pyrophosphate of iron in 8 fluidounces of distilled water, and adding 4 fluidounces each of syrup of orange peel and brandy. Ibid.

Elixir Picis Liquidæ Comp. of the Washington Pharmaceutists, is prepared by mixing a pint of wine of tar (see wines in this report) with four fluidounces each of syrup of wild cherry bark, and syrup of tolu, and one fluidounce of rectified wood naphtha (methylic alcohol) and dissolving in the mixture 4 grs. of sulphate of morphia. Dose, two teaspoonfuls. Ibid, 239.

EXTRACTS.

Extract. Cinchonæ. Dr. E. R. Squibb, in his paper *on the Pharmacy of the Cinchonas*, recommends the introduction of a small quantity of glycerine to the extract, which prevents it from becoming hard and insoluble. For details of manipulation, &c., see A. J. Ph. xxxix, 408.

Ext. Cinchonæ Comp. The same author proposes the preparation of a compound extract of cinchona by percolating 16 troy-ounces of red or yellow bark, in fine powder, with 30 fluidounces of alcohol, followed by water until the percolate begins to get turbid on the surface. The alcohol is distilled off, the residue evaporated to 4 ounces and 600 grains of glycerine thoroughly stirred with it. The extract is finished by incorporating with it 1 oz. of aromatics. Ibid, 514.

Ext. Glycyrrhizæ. According to the theory advanced by C. Rode, the large quantity of apotheme formed during the preparation of this extract is a modification of glycyrrhizin. N. Jahr. Ph. xxviii, 323.

The same author makes some practical remarks on the *narcotic extracts*, with special reference to the Pharm. Norveg. He discusses the preparation of the watery and alcoholic forms of these extracts, their properties and merits. N. Jahr. Ph. xxvii., 318.

FLUID EXTRACTS.

Ext. Aromat. Fluid. Dr. Squibb recommends an aromatic fluid extract, prepared from aromatic powder, modified as prepared by him, (see powders in this report). It is displaced fractionally with alcohol. For details see A. J. Ph. xxxix, 528.

Ext. Assafœtidæ Fluid (Aeth). Mr. Fairthorn proposes its preparation for the purpose of making suppositories, as follows:

Cut one troyounce of assafœtida into pieces about the size of a pea, agitate this occasionally for 2 or 3 days in a bottle containing f℥iij and f℥vj of strong ether and f℥iij of water. Decant the etherial solution and strain. A. J. Ph. xl, 115.

Fluid Extracts of the Cinchonas. Dr. Squibb has experimented largely upon this class of fluid extracts, and proposes a number of formulas which he claims to be improvements upon the officinal.

Ext. Cinchonæ Fluid. 16 troyounces of yellow bark is exhausted by maceration and displacement with alcohol, according to a method specified by the author. The percolate obtained is distilled to 6 troyounces and, while warm, 8 fluidounces of glycerine is added. Finally the cooled mixture is brought to the measure of a pint, by the addition of sufficient of the alcohol recovered.

Extract Cinchon. Fluid. Comp. is prepared according to the above formula, with the exception that the percolate is evaporated to 5 ounces before adding the glycerine, and the measure brought to a pint by the addition of a

Comp. Fluid Ext. of Bitter Orange Peel, prepared from 18 oz. bitter orange peel, 4½ ounces serpentaria, and 1½ ounces saffron in fine powder, by fractional displacement with alcohol, followed by diluted alcohol and water, as specified by the author.

Comp. Fluid Extract of Red Bark.

Comp. Fluid Extract of Calisaya containing Aromatics, and

Fluid Extract of Calisaya containing Aromatics are also proposed, and their process of preparation, their advantages and disadvantages are fully detailed. A. J. Ph. xxxix, 515 to 519.

Fluid Extract of Ergot is recommended by Mr. J. W. Mill, to be prepared in the officinal proportion, by exhausting the ergot in fine powder by percolating with water acidulated with acetic acid, (in the proportion of two fluidrachms to the pint of water), evaporating the percolate to three-fourths the measure required, and making up the measure with alcohol. About three pints of percolate should be obtained from 16 troyounces of ergot. Proceedings 1867.

Dr. Squibb, in reference to this, stated that the officinal process leaves little to be desired when properly conducted, and that the above process has therefore t› be received with great caution. He has known the same officinal fluid extract to be used after an interval of eight years, with the same effect, and it appears therefore to be permanent. Ibid.

Succ. Liquirit. dep. liquid., should, according to Calmberg, be shaken occasionally in the bottle in which it is kept, to prevent moulding. Viert. Jahr. Ph. xvii, 67.

LINIMENTS AND WASHES.

Glycerine Lotion for chapped hands is prepared by simmering one drachm of quince seed in half pint of boiling water for 10 minutes, straining the mucilage and mixing 1 part with 1 part of inodorous glycerine, and 6 parts of orange flower or rose water. A little borax may be added if desirable. A. J. Ph. xl, 275.

Liniment of Iodine with Carbolic Acid is suggested to be made, by Dr. Percy Boulton, by mixing 3 grm. comp. tinct. iodine, 6 drops pure liquid carbolic acid, 30 grm. glycerine and 150 grm. dist. water. It is one of the most powerful antiseptics we possess, and intrinsically a more efficacious agent than iodine alone. Ch. N. Dec. 27, 267.

Mr. Chas. Bullock, commenting upon this solution, states, that when it is exposed to diffused or direct light, it will become colorless in the course of 8 or 10 days, if kept at a temp. of 60° F., while, when exposed to a temp. of 90° to 100°F, it requires only as many hours. He ascribes the change to a reaction between the carbolic acid and iodine, by which iodoform is probably produced. A. J. Ph. xl, 329.

Lotio Alba Boracis. (Nipple wash of the Washington Pharmaceutists.) Borax 1 drachm, boiling (?) rose water a fluidounce; dissolve, filter and add oil of sweet almonds a fluidounce; mix well. A. J. Ph. xl, 239.

Opodeldoc Chloroformatum. The following formula is given in Ph. C. N. 1867. R. saponis butyrini, p. 2; solve digerendo in alcoholis fort. p. 20; liquori filtrato adde chloroformi p. 3.

MIXTURES.

Carbolic Acid Mixture. Carbolic acid (cryst.) 3 parts (?), distilled water 3 ounces, orange flower water ½ ounce, syrup of orange peel 1 ounce. 3 parts in two hours in the treatment of cholera. A. D. Cir. xl, 261.

(It is not clear what is meant by 3 *parts* carbolic acid.)

Chlorinated Mixture. Dr. Dobie extols the mixture in the treatment of cholera. It is prepared as follows: Introduce into a wine or brandy bottle, previously moderately warmed, 8 grs. chlorate of potassa in coarse powder and add 1 fluidrachm of C. P. muriatic acid; agitate until effervescence ceases and the chlorate is completely dissolved. Then add 16 ounces of water, one ounce at a time, agitating briskly after each addition. Finally add 2 fluidrachms of chloric ether, and the mixture is complete. A. J. Med. Sc. cvii, 248.

Chlorodyne. Mr. McInall, Jr., proposes the following formula: take of sulph. morphia grs. lxiv; alcohol 95 per cent. f℥ij, chloroform purif. f℥vj; shake these together and add sufficient sulphuric acid, until by agitation a clear solution is produced. Lastly, add oleoresin of capsicum gtt. xij, extract of cannabis indica (Allen's) grs. xxx; hydrocyanic acid (Scheele's) gtt. xcvi. A. J. Ph. xl, 209.

Mixtura Hæmostatica (Warren's). Add 5 drachms of concentrated sulphuric acid gradually to 2 drachms of oil of turpentine, and then add to the mixture, very cautiously, 2 drachms of alcohol. (Unofficinal formula of the Washington Pharmaceutists.) A. J. Ph. xl, 239.

Artificial Milk. Mr. Guibourt, in a paper read before the Academy of Medicine, called attention to the artificial milk invented by Baron v. Liebig, and suggests that we have a much more efficient and appropriate substitute for human milk in cows milk. By adding to the latter a little sugar and one-fifth of its weight of water, we possess a better substitute for human milk than any artificial compound.

M. Depaul has practically tried the effects of Liebig's artificial milk on four new born children, all of whom died in the course of a few days. Ch. News, July 5, 1867.

PILLS.

Anti-spasmodic and Anti-neuralgic Pills of Rayer. Ext. valerian, assafœtida, galbanum, castor, of each 1 grm. Make 18 pills. Dose 1 pill 3 times daily. J. Chim. Méd. A. J. Ph. xxxix, 417.

Pills of Carbolate of Quinia are prepared, according to the suggestion of G. Braun, by dissolving 60 grs. of carbolic acid and 100 grs. quinia in 300 grs. of highly rectified spirit, filtering the solution, evaporating to the consistency of turpentine, and forming into 100 pills by the aid of extractum acori and powdered cassia. The dose is 1 pill 3 to 6 times daily. A. J. Med. Sc. cxi., 261.

Pills of Iodide of Iron are prepared by Dorsey, by reducing 80 grs. of iodine to a fine powder in a glass mortar slightly warmed, adding 50 minims of water and 40 grs. of reduced iron (of standard quality) in fractional portions; 100 grs. of sugar and 20 grs. of powdered gum arabic are added, as soon as the iodine is all combined, triturated into a pasty mass, and after incorporating with it 80 grs. of powdered marshmallow, divided into 96 pills. They may be rolled out in reduced iron, partially dried at a temperature not exceeding 120° Fahr. and coated with balsam of tolu. Pills thus prepared have kept for a year, and show no sign of decomposition. A. J. Ph. xl. 109.

Podophyllum Pills, for some time prepared by Dr. E. R. Squibb, are of the following composition: Resina podophylli (prepared as suggested by Dr. S. in A. J. Ph. xl. 1—see also Podophyllum in this report), 36 grs.; alcoholic extract belladonna, 18 grs. (or alcoholic extract of henbane, 144 grs.); powdered capsicum, 144 grs.; powdered sugar of milk, 144 grs.; powdered acacia, 36 grs.; glycerine, 40 ♏. Syrup. q. s. Make 144 pills. A. J. Ph. xl. 11.

Pilulæ Podophyllini Compositæ, of the Washington Pharmaceutists, have the following composition: podophyllum (resin?) 6 grs.; leptandrin, 12 grs.; ext. nux vomica, 3 grs.; ext. aloes, 24 grs.; make 24 pills. Dose, 1 to 3 pills.

PLASTERS.

Adhesive Plaster. The adhesive properties of this plaster are increased, according to Palmberg, by the addition of one-sixth ceratum saponis and one-twentieth of lard. Viert. Jahr. Ph. xvii. 68.

Corn Plasters are prepared by the same author by coating one side of a piece of soft felt of about 4 mm. thickness with a solution of 1 p. glue and 1 p. gum in 4 p. water, and drying. It is then cut, by means of a gun-wadding punch, into disks of about 24 mm. diameter, and a hole punched in the centre of about 8 mm. diameter. Ibid. 66.

Lead Plaster. For some suggestions on the manipulation in the manufacture of this plaster, by C. Lewis Diehl, see A. J. Ph. xxxix. 385.

Soap Plaster. The same author recommends that the soap, after trituration with water, as provided by the formula of the Pharmacopœia, be strained through muslin, thus insuring a smooth plaster, otherwise attainable with difficulty. Ibid.

Emplastrum Peruvianum. (Breast plaster of the Washington Pharmaceutists.) Lead plaster, ammoniac and mercury plaster, soap plaster, of each 2 troy oz.; powdered camphor, 6 drs.; balsam Peru, 4 drachms; mercurial ointment, 2 drachms. Melt the plaster and mix in the other ingredients. A. J. Ph. xl. 239.

Charta sinapinata of Rigollot, is prepared by covering paper (sized with a solution of caoutchouc in bisulphide of carbon, or a solution of resin) with finely powdered and well dried black mustard, deprived of its oil, and passing the paper thus covered between two cylinders. Rigollot's paper has a stratum of mustard 0·7 mm. thick, which adheres well, and does not peel off on bending. Ph. C. H. 1867; A. J. Ph. xl. 312.

POWDERS.

Officinal Powders. Mr. Clemmons Parrish has made a number of experiments on various drugs to determine the percentage of the several officinal grades (as required for the preparation of tinctures) contained in a powder passed through a No. 20 sieve. See A. J. Ph. xl. 205.

Aromatic Powder. Dr. Squibb proposes a modification of the aromatic powder of the Pharmacopœia, in his paper on the "*Pharmacy of the Cinchonas*," for various reasons therein stated. Its composition as modified would be: true cinnamon, ginger *aa* ℥ij, cardamom 680 grs., nutmeg ℥j. A. J. Ph. xxxix. 527.

Powdered Castile Soap. J. P. Remington makes some valuable suggestions on powdering castile soap, in A. J. Ph. xxxix. 396. The soap, in fine shavings, should be exposed for one week to a temperature of 84° F. It is important that the soap should not be exposed to the higher temperature at once, for it would melt and become unmanageable. Two lots of white castile soap lost respectively 27·18 and 29·16 p. c.; six lots of mottled soap, 11½, 18, 20, 21, 27, 28·8 p. c.

Granulated Effervescing Carbonate of Iron is prepared by Müller by making a mass with 42 p. finely powdered protosulphate of iron, 190 p. bicarb. soda, and 128 p. tartaric acid, by means of absolute alcohol, passing the resulting mass through a sieve and drying at ordinary temperature. Ph. Z. Russ. vii. 119.

Granular Charcoal. Mr. W. L. Scott recommends the preparation of granular charcoal for internal administration. He proposes box willow or lime-tree wood for preparing the charcoal, which should be cooled out of contact with air, purified by boiling with dilute hydrochloric acid and subsequent washing with weak ammonia and distilled water. The dried fragments are then again ignited in a proper vessel, after which, and before they are cold, they must be quickly pulverized and passed through a sieve of 80 to 100 meshes to the inch; 9 ℔ of this charcoal is then intimately mixed with 1 ℔ of sugar (which has been passed through a No. 30 sieve) and about 4 oz. powdered gum arabic. It is then slightly moistened with a few ounces of warm distilled water, to which 1¼ oz. of tincture of benzoin and a little mucilage has been added, and is then ready for granulation, which is effected in the usual manner upon a flat steam-pan at a temperature of 215° to 225° Fahr.

It should, when properly made, present a hard, compact struc-

ture and sweet, slightly aromatic taste; it should not soil the fingers when dry, but must disintegrate quickly when in the presence of moisture, without exhibiting any gritty particles. Proc. Br. Ph. Conf. 1867–41. Ph. J. Trans. ix. 187.

Saccharated Effervescing Citrate of Magnesia. Mr. G. Dymond states that this article, as met with in England, generally contains no citrate of magnesia at all, and that some large manufacturers have acknowledged this fact. He has prepared a specimen of saccharated effervescing citrate of magnesia, which is a mechanically prepared mixture of carbonate of magnesia and citric acid in equivalent proportions, and 15 p. c. of sugar. It appears to fulfill all the required conditions and forms a bright solution. Ph. J. Trans. ix. 167.

SOLUTIONS.

Solution of Bi-meconate of Morphia. Prof. E. S. Wayne suggests that this solution should be uniform in its morphia strength. He estimates that good opium should contain 12½ per cent. of morphia, and, whether the amount obtained by him during the process is more or less, he brings the solution up to that standard,—equal to 75 grs. in the pint. Proceedings, 1867, 382.

Liquor Bismuthi. C. H. Wood contradicts the disparaging statements, lately made by Mr. Schacht, on the solution of the Br. Ph., and states that if the formula of that Pharmacopœia is followed to the letter, the solution is free from arsenic and other deleterious metals. For obvious reasons the author recommends the use of crystals of nitrate of bismuth, and advocates the following method:

Dissolve 20 oz. (av.) of citric acid in 2 pints (Imp. meas.) of distilled water, and add 18¼ oz. (av.) of crystallized nitrate of bismuth. When dissolved, (which occurs rapidly,) add little by little aqua ammoniæ fort. (Br. Ph.) diluted with an equal bulk of distilled water, until the precipitate formed is redissolved and the liquid is neutral. Dilute the resulting solution to 1 gallon, (Imp. meas.) More citric acid is employed than the Br. Ph. directs, which the author finds desirable when the crystals are employed in lieu of the nitric solution. Ph. J. Trans. March, 1868. A. J. Ph. xl. 261.

Solution of Citrate of Magnesia. W. D. Atkinson, Jr., proposes the following formula: Dissolve 10½ oz. citric acid in 2 pints and 1½ fluidounces of water; add 2 oz. carbonate of magnesia, and when dissolved, filter. For each bottle use 3 oz. of this solution, 2 oz. of syrup, q. s. water to fill it and 43 grs. of bicarbonate of potassa. Mr. Procter has tried this formula, who finds it a little acid, but otherwise pleasant, and suggests as an improvement the addition of lemon flavor. A. J. Ph. xl. 16.

Solution of Citrate of Magnesia containing Sulphate is proposed by Mr. Wm. R. Warner, which contains but half the amount of citrate required by the officinal formula, is an active and permanent preparation, and does not produce the embarrassment in the stomach occasionally noticed by the use of the officinal solution. The following is the formula: ℞. acid. citric, 1 ℔. (av.), magnes. calc. 3½ oz. (av.), magnes. sulph. 6 oz. (av.), aquæ pur. cong. j.; dissolve and filter. Use for each bottle 4 fluidounces of this solution, together with 10 fluidrachms of lemon syrup, 30 grs. bicarbonate of potassa and q. s. water. A. J. Ph. xxxix. 397.

Solution of Chlorinated Magnesia. Mr. R. F. Fairthorne recommends this solution as a substitute for Labarraque's disinfecting liquid. It is prepared by mixing solutions of 8 oz. sulphate of magnesia and 4 oz. and 1 drachm of chlorinated lime, each in 2 pints of water. After standing 12 hours the supernatant liquid is decanted and a solution is formed, which was, by experiment, found to contain 9 grs. of magnesia in the fluidounce. A. J. Ph. xl. 70.

(The amount of magnesia in a fluidounce is no criterion of quality of this solution, as its value is dependent on the chlorine contained in it. According to the above formula, all the magnesia (employed as sulphate) must remain in the solution, whether it is changed into hypochlorite or not. A small amount of sul phate of lime is also retained, which might be taken for magnesia unless the solution is regularly analyzed. A. J. Ph. xl. 70.

Solution of Morphia in Chloroform. A uniform and permanent combination of morphia and chloroform is obtained by

Prof. Bernatzik by dissolving 3 grs. of pure morphia in one drachm of strong alcohol, by the aid of 3 drops of the strongest acetic acid and gentle heat, and adding, when cold, half an ounce of chloroform; 3 drops of this solution weigh one grain, and 30 drops (10 grs.) correspond to one-tenth of a grain of morphia. It is recommended as a remedy in toothache, and when administered internally, is found to obviate the disagreeable concomitant effects of morphia, especially vomiting and nausea. A. J. Ph. xl. 252.

Solution of Caffeina in Chloroform is recommended by the same author for the premonitory symptoms of hemicrania, and is prepared as follows: Dissolve 10 grs. of caffeina in 2 drachms of strong alcohol and ½ drachm of water, by the aid of gentle heat, and add, when cooled, 2 drachms of chloroform. It must be protected from light; 30 grains, or 75 drops, of this solution contain 1 gr. of the alkaloid; the dose is 15 to 20 drops, at short intervals. A. J. Ph. xl. 254.

Solution of Pyrophosphate of Soda and Iron. Prof. Maisch proposes the following formulas for preparing a solution, containing 1 and one-fifth grs. of dry pyroph. iron in the fluidrachm, equal to 2½ grs. of the officinal salt:

1. Liquor. ferri tersulph. ♏. lx; sod. pyrophosph. grs. c.; ammon. carb. grs. xxx., aquæ distil. f℥vii., syrup. simpl. f℥vi. M. The addition of ammonia is necessary to keep the solution in a neutral or slightly alkaline condition. The following formula renders the addition of carbonate of ammonia unnecessary:

2. Liq. ferr. tersulph. ♏. lx., sodæ pyrophosph. grs. cc., aquæ distil. f℥xiv., syrup f℥iss. M. The iron solution must be properly prepared; the presence of alcohol or free acid favors precipitation. A. J. Ph. xxxix. 388.

(*Liquor?*) *Ferrum Oxydatum Dialysatum*, a new ferruginous preparation, is proposed by C. Grossinger. It is prepared by adding to a solution of perchloride of iron freshly precipitated hydrated sesquioxide of iron as long as it is dissolved, and then submitting the liquid to dialysis on a parchment dialyser, plaited so as to fit a glass funnel, which is placed in water, so that the liquid in the dialyser and the water surrounding it are at

the same height. The outside liquid is tested from time to time for chlorine, and is removed as long as it gives a reaction with Ag O NO_5; finally, the solution in the dialyser is reduced with water to the sp. gr. 1·046. One fluidounce of this solution contains 46 grs. of sesquioxide of iron. N. Jahr. Ph. xxviii. 314.

Iron Solutions for Dyeing. Rösler gives the following formulæ:

Solution of Oxide of Iron, (technically so-called). 10 ℔. water, 6 ℔. nitric acid, 36° B., and 3 ℔. of sulphuric acid are introduced into a stone jar, and to this copperas is added in the cold as long as it is dissolved and red fumes are given off; the jar is then placed in a water bath, and copperas is added until 33 ℔. has been used altogether. The contents of the jar are then transferred to an iron kettle, allowed to boil up once, transferred to an appropriate vessel and allowed to settle.

Chemically Pure Nitrate of Iron (so-called) is prepared by dissolving in 2 p. NO_5, 36° B., and 1 p. water, keeping the vessel cooled as long as the iron is dissolving. The solution thus obtained is allowed to settle in the presence of metallic iron, and has a density of from 38° to 40° B. Ch. C. B. Mar. 18, 1868.

Pennés Antiseptic Liquid is produced by adding 2 parts of hydrobromic acid to 8 parts of pure carbolic acid, contained in a porcelain capsule placed on a sand or steam bath. When the combination is effected, fill in small glass-stoppered vials. J. Chim. Med. A. J. Ph. xxxix, 417.

SPIRITS.

Spts. Lavender Comp. Mr. Wm. Thompson proposes the following formula for preparing comp. spts. lavender, by which he obtains a transparent, richly colored tincture. Alcohol 6 pints, oil of lavender flowers f℥j, oil of rosemary f℥ij, oil of cinnamon f℥ss, oil of cloves 10 drops, water 2 pints, cochineal ℥iiss. Dissolve the oils in the alcohol; add the water in small portions, shaking after each addition; finally add the cochineal, and after 24 to 48 hours filter. A. J. Ph. xxxix, 512.

Commenting upon this formula, the editor of A. J. Ph. very properly regards cochineal as objectionable as a coloring matter, for the reason that the comp. spirit is used as a coloring for liquor potassæ arsenitis.

Spts. Æther. Nitrosi. The process of Prof. Redwood, for preparing sweet spirit of nitre is strongly recommended by Mr. A. T. Moith, as applicable to the wants of the pharmaceutists. The author describes the process and manipulation as applied by him on a small scale. Proceedings 1867. A. J. Ph. xl, 73.

SUPPOSITORIES.

Mr. J. B. Moore gives some valuable and practical suggestions on the preparation of suppositories in A. J. Ph. xl, 223.

For some practical remarks on the same subject by B. S. Proctor and H. B. Brady see Ph. J. Trans. ix.

Suppositories of Assafœtida. From ʒj, ʒj, etherial fluid extract of assafœtida (see fluid-extract in this report), evaporate the ether on a water bath, then add ʒxij butter of cacao, melt, stir well and pour into moulds, forming 24 suppositories. A. J. Ph. xl, 14.

(The author states that a dense orange-colored substance will persistently remain at the bottom of the dish in conducting this process, but inclines to the belief that the odorous principles of assafœtida are all extracted. This deposition may perhaps be prevented if the ethereal solution is evaporated in contact with the melted cacao butter and constantly stirred. C. L. D).

Vaginal Suppositories. Dr. Black has employed and recommends the following formulæ for suppositories for the treatment of the various stages of gonorrhœa in the female:

℞. Olei theobromæ, ʒxij; morphiæ sulph. gr. vj; liquor. ferri persulph. gtt. cxliv; cerat. adipis, ʒiijss. M. et fiant suppositoria, xij.

℞. Aluminis pulv., ʒiij; acidi tannici, ʒij; ext. opii, gr. xij; olei theobromæ, ʒxij; cerat. adipis, ℈x; M. et fiant suppositoria, xij.

℞. Olei theobromæ, ʒxij; ung. iodini comp. ʒvj; morphiæ acetatis, grs. vj; M. et fiant suppositoria, xij.

℞. Olei theobromæ, ʒxij; morph. acet. gr. vj; ung. hyd. nitrat., ʒv; M. et fiant suppositoria, xij.

℞. Olei theobromæ, ʒx; morph. acet. grs. vj; olei copaibæ gtt. cxliv; cerat. adipis, ʒxvilj; acaciæ pulv., q. s. M. et fiant suppositoria, xij.

℞. Olei theobromæ, ʒxij; morph. acet. grs. vj; liquor. zinci chlor. gtt. cxx; cerat. adipis, ℈x. M. et fiant suppositoria, xij. A. J. Med. Sc. A. D. Cir. xij, 182.

SYRUPS.

Compound Syrup of Coffee of Severin is prepared as follows: Pulverize 40 oz. of raw mocha coffee, introduce into a percolator of such size that it will be half filled, and percolate with distilled water at 140°F. for 12 hours, maintaining the temperature during that time. Pour the percolate on 26½ oz. of sugar, and continue the percolation at the same temperature, until the coffee is exhausted, add to the last percolate 154 grains of ash leaves (Fraxinus excelsior), and evaporate until it is so far reduced as to make with the dense liquid and sugar a pint (?) of syrup, which is to be filtered, and when cool 5 drops of liquid phenic acid added to it. A. J. Ph. xl, 332.

(One pint of syrup cannot hold 26½ oz. of sugar in solution, and it is therefore suggested that from 28 to 32 fluidounces is about the appropriate quantity. C. L. D.)

Syrup of Phosphates of Iron, Quinia and Strychnia. C. Lewis Diehl, having observed discoloration and precipitation in this syrup on standing, suggests that it may be prevented by corking the bottle securely and keeping them excluded from light.

(Prof. Maisch says that the syrup is not affected by diffused light, and that the precipitation is owing to insufficient phosphoric acid. Since that, your reporter has prepared several hundred pounds of this syrup, and finds the statement of Prof. Maisch correct.)

A. S., in a communication to the A. J. Ph. (see vol. xl, 322,) states some difficulties that have occurred to him in preparing this syrup according to Aitken's formula, and offers a formula which he states will ensure success.

(As stated above, Aitken's formula will succeed, if followed, to the letter.)

Syrup of Hypophosphite of Iron. C. H. Wood, referring to the disadvantage of the process given in Ph. J. Trans. vii, p. 440, and in Parrish's Pharmacy, states that he has made a good syrup, containing 2 grains of hypophosph. iron in 1 drachm, by dissolving 480 grs. of granulated sulphate of iron in 1 ounce of dilute phosphoric acid and 1½ ounces of distilled water; then reducing 326 grains of hypophosphite of lime to fine powder, adding to it the solution of sulphate of iron, triturating and, after expressing through calico, filtering into 7 times its volume of simple syrup. Ch. N. Mar. 20, 1868.

Syrupus Ferri Iodidi. Dr. E. R. Squibb has found from 15 to 20 min. of a solution of 15 to 20 grs. of hyposulphite of soda in 1 fluidounce of water, to restore the color of syrup of iodide of iron, when the color had not become darker than brown cherry wine. Syrup thus restored is not so apt to change again, and its applicability should therefore be tested. A. J. Ph. xl, 99.

Hyposulphite of soda was proposed by Prof. F. F. Mayer for preserving aqeous solutions of iodide of iron, in Proceedings Am. Pharm. Ass. 1859, p. 371.

Syrup of Lactucarium. J. Kenworthy proposes an improvement on the Pharmacopœia formula as follows: One troy-ounce lactucarium, in fine powder, is percolated with diluted alcohol until half a pint of tincture is obtained. This is evaporated at a temperature not exceeding 160°F. to 2 fluidounces, triturated in a mortar with 2 troy-ounces of powdered pumice stone and 2 troy-ounces of sugar, followed by 4 fluidounces of water. The mixture is thrown on a filter, the filtrate allowed to drop into another containing purified animal charcoal, and sufficient water added, as fast as the filtrate passes, to make the measure up to 8 fluidounces, in which dissolve 12 troy-ounces of sugar and flavor with 1 fluidounce of orange flower water. A beautiful clear and permanent syrup results. A. J. Ph. xl, 113.

The proposed formula of Mr. Fairthorne is similar up to

evaporating to 2 fluidounces; the evaporated tincture being then shaken for about ten minutes with 1½ fluid oz. of stronger ether, the lower, dark-colored liquid separated, heated to drive off any remaining ether, and after filtering through cotton, adding 2 fluid oz. of orange-flower water, 4 fluid oz. of distilled water, and 14 troy oz. of sugar. Ibid. 114.

Syrupus senegæ, which, if prepared according to the officinal process, is frequently cloudy and semi-gelatinous, may be prepared so as to form a clear syrup, according to the experiments of C. Lewis Diehl, by dissolving the alcoholic extract from an aquebus extract prepared from the officinal quantity of root in the requisite amount of water, and after filtering the solution, converting into syrup by using a little less sugar than directed by the Pharmacopœia. Proceedings 1867. A. J. Ph. xl, 44.

Syrup against Diarrhœa of Mayet. Powdered gum arabic, 15 grm.; dist. cinnamon water, 15 grm.; dist. mint water, 10 grm.; syrup of quinces, 20 grm.; ext. of opium, 5 to 10 centigrm. It is mixed with half a tumbler full of water when wanted for use, and of the mixture a tablespoonful taken every hour. Jour. Chin. Med. A. J. Ph. xxxix, 418.

Teething Syrup of Delabarre. Fresh tamarind juice, 3 grm.; infusion of saffron (from 6 centigrm) 2 grm.; clarified honey, 10 grm.; tinc. vanilla, 25 centigrm. Mix. To be rubbed on the gums. Ibid.

TINCTURES.

Tincture of Cactus grandiflora. Dr. Patten recommends a saturated tincture prepared from 4 oz. of the stems and flowers by maceration in 1 pint of 95 p. ct. alcohol for one month. He finds it a specific remedy in diseases of the heart. Bost. Med. and Sur. Jour. A. D. Cir. xi, 227.

Tinctura Cinchonæ ferrata, of the Washington pharmaceutists, is prepared by displacing 1 troy oz. of calisaya bark, 6 drachms of bitter orange peel, and 1½ drachms of serpentaria with diluted alcohol, until 10 fluid oz. of percolate is obtained. This is agitated with subcarbonate of iron until a portion filtered off no longer produces a precipitate with solution of subsulphate of iron. It is then filtered, brought to the measure of 10 fluid

oz. by the addition of boiling alcohol, and ferrated by the addition of 160 grs. of soluble citrate of iron. A. J. Ph. xl, 238.

Tinc. Ferri chlor. Mr. F. V. Heydenreich, who has met with uniform success in the preparation of this tincture according to the officinal process, believes it can only be improved in the modus operandi; and suggests that if the nitric acid, when added, is poured along the sides of the dish, the oxidation takes place regularly, without danger of frothing, and the process leaves nothing to be desired. Proc. 1867, 361.

Tinc. Iodinii decolorata, recommended by Dr. Aitken as a more efficient absorbent, &c., than ordinary solutions of iodine, is prepared by dissolving 1 scruple of camphor in 1 oz. of tinctura iodinii comp. and adding 1 oz. of aq. ammon. fort. It is allowed to stand until it becomes colorless. A. D. Cir. xi, 275.

WINES.

Vinum pepsicum, of the Washington Pharmaceutists, is prepared by mixing 1½ drachms of powdered pepsine (Boudaults?), 6 fluid oz. of dist. water, 1 troy oz. of sugar, 15 fluidrachms of sherry wine, and 3 fluidrachms of alcohol. A. J. Ph. xi, 239.

Wine of Tar, of the same authority, is prepared by triturating 6 troy oz. of tar with 2 troy oz. of carbonate of magnesia, digesting the mixture with 4 pints of sherry wine and filtering, bringing the measure of the filtrate to 4 pints by pouring an additional quantity of wine on the filter. Ibid.

MATERIA MEDICA.

VEGETABLE DRUGS.

BERBERIDACEÆ.

Berberis Darwinii, (*Hook*). This shrub abounds in the provinces of Valdivia and Chiloe, Chili, and is said to possess tonic properties like gentian. v. Schroff, in N. Rep. Ph. xvi, 720.

Podophyllum peltatum. The experiments of W. Saunders indicate that samples of May apple root, containing a large proportion of radical fibres, cannot be regarded as inferior in quality to samples that contain but a small proportion of these; the fibres yielding, under the same conditions, as much resin as the rhizome. Proceedings 1867. A. J. Ph. xl, 74.

Resina podophylli. Dr. Squibb finds the Pharmacopœia formula objectionable. First, because it omits the use of muriatic acid in its precipitation; second, because a great excess of alcohol is directed to be used; third, because details of primary importance to the production of a good product are wanting. The British process is perhaps more objectionable on account of the excessive use of muriatic acid and alcohol, and because it directs the product to be dried by the heat of a stove. The author determined by experiment that, when the root is properly comminuted, it requires a comparatively small amount of alcohol for the practical exhaustion of its resinous constituents; that a small amount of muriatic acid is necessary for the complete precipitation of the resin in the cold, and that the precipitate produced should not be dried at a temperature above 90° Fahr. The author recommends its preparation by exhausting 48 troy oz. of root, by fractional displacement, with 5 pints of alcohol, and after properly concentrating the tincture and diluting with water, precipitating the resin in 7 pints of water containing f℥ij of muriatic acid. A. J. Ph. xl, 1.

MAGNOLIACEÆ.

Drimys Chilensis (D. C). According to Chilian authority, the bark of this evergreen, which abounds in the Cordilleras, contains *volatile oil* and *carmine* (?). It bears great resemblance to Cortex Winteri. Formerly it was highly valued in European markets. v. Schroff, in Buch. Rep. xvi, 720.

MENISPERMACEÆ.

Cocculus palmatus. Colombin, prepared by Bödecker's process (evaporating an ethereal solution of an alcoholic extract of columbo, washing the crystals with cold ether and drying) is recommended highly by Wittstock, in doses of 5 to 15 centigrm.

daily, in the treatment of dyspepsia. J. Chim. Méd .A. J. Ph. xxxix.

Coscinium fenestratum. Stenhouse proposes a process by which from 1½ to 3½ p. c. of pure *berberina* may be obtained from the wood of this tree, which grows abundantly in Ceylon and other parts of India. J. Chem. Soc. Ch. C. B. Nov. 30, 1867.

PAPAVERACEÆ.

Papaver somniferum. Dr. C. Finckh describes a large variety of oriental opiums in Buch. Rep. xvi, 749, of which the following is selected.

Gheiwé or Gévé Opium is collected from red-flowering poppies, and may be regarded as the finest opium; it contains from 12 to 15 p. c. of morphia. It occurs in the form of small, flat cakes with rounded edges, weighs from 2 to 3 ounces, and is wrapped in poppy leaves with the smooth surface on the outside, and the midrib in the centre, thus dividing the cakes into two portions. Internally it consists of layers of light and dark opium.

Amasia Opium resembles the above variety very closely, with the exception that the two poppy leaves, enveloping it, are placed crosswise and with the rough surface out, thus giving the cakes a rough appearance. Internally the mass is homogeneous, but it approaches the Gévé opium as regards quality.

Malattia Opium consists of round or slightly oval cakes, weighing from 4 to 5 ounces, which are worked with great care and enveloped in poppy leaves with their rough surface out, the midrib forming the centre of the cake. Its edges, from which the poppy leaves are usually rubbed off, terminate very acutely. Internally it is homogeneous, but usually of inferior morphia strength.

Magnesia Opium is of excellent quality, and occurs in irregular shaped cakes, weighing from 1 to 4 ounces. The cakes are first covered with rumex flowers and then with either poppy or grape leaves, and originally are round, but loose their shape by packing. Internally it consists of a conglomeration of tears; according to Baur, it is the only kind which occurs in that form

Salonik and Kutschiua Opium, are frequently sold for Gévé opium, which they resemble very closely in every respect.

The above are types of *Anatolia* and *Macedonian Opium;* the following are types of *Smyrna Opium*:

Balukhissar Opium, the chief contributor to our supplies of Smyrna opium, occurs in cakes of 4 to 12 oz. Its form, originally egg-shaped, becomes irregular by packing; the poppy leaves are put on very irregulary and the cakes are covered with rumex flowers. Internally it consists of light and dark layers, is very rich in morphia and therefore in active demand.

Cutaya Opium is usually half as large as the above, which it otherwise resembles in every respect, being equally rich in morphia.

Taushan or Taushanly Opium occurs in extremely irregular and indented cakes, generally twice as long as broad, and weighing from 3 to 5 ounces. The mass consists of layers irregularly enveloped in poppy leaves, and covered with but few rumex flowers; it is rich in morphia.

Angora or Engiri Opium is readily recognized by the under surface of the cake alone being covered with poppy leaves. They are nearly circular, appear to have been ball-formed when fresh, and weigh from 6 to 8 oz. The mass is uniform and of inferior quality.

Kara Hissar Opium occurs in ball-shaped cakes, flat at the bottom, weighing 6 to 8 oz., and covered with poppy leaves and rumex seed. They are worked handsomely, but, like the preceding variety, contain a poor percentage of morphia.

Cigusti Opium occurs in cakes of irregular shape, weighing from 6 to 8 oz., wrapped in poppy leaves and covered with rumex seed; seldom adulterated, but generally mixed with poppy capsules, forming a mass which is neither in layers nor in the form of tears. Occasionally rich in opium, it is found mixed with nearly all Smyrna opium.

The following varieties are also described:

Persian Opium, which reaches European markets now in considerable quantities, occurs ordinarily in cakes of about 12 oz., the

better qualities wrapped in sycamore leaves; the inferior qualities with fragments of various leaves. The mass is soft, light brown and homogeneous, and contains considerable quantities of oil. Those wrapped in entire leaves contain from 8 to 10 p. c. of morphia, while the others contain but 5 to 6 p. c. Persian *stick opium* occurs in cylindrical sticks about 5½ in. long, and from 3 to 4 lines diameter. These are wrapped in paper in such manner that both ends are exposed, and in the centre are loosely tied with a piece of cotton yarn. The mass is light brown, homogeneous, saturated with oil of poppies and contains about 10 p. c. of morphia.

Egyptian Opium reaches commerce via Constantinople, and is *always* adulterated, being mixed with one-fourth its weight of gum arabic, forming a very hard and brittle mass.

Adulterated Opium. The author met with the following adulterations: *Macedonian* with clay; *Angora* with pieces of wax; *Amasia* with cherry gum; *Taushanly* with extract of liquorice, and *Balukhissar* mixed into a homogeneous mass with fused colophonium. He has also met with an adulteration consisting of cakes, shaped like opium, which were composed evidently of clay and cow dung; such adulterations are said to be met with frequently in Macedonian opium.

E. R. Heffter, of Smyrna, has published a phamphlet *on the culture and commerce of opium* in Asia Minor, which is republished in A. J. Ph. xl, 362, and contributing largely to our knowledge of this important drug, will be read with interest and profit.

By experiments on the physiological action of *thebaina*, *papaverina* and *porphyroxin*, Baxt finds the action of thebaina to be closely allied to strychnia, (although in a much milder form,) that of papaverina to morphia, while that of porphyroxin is intermediate between the two. N. Jahr. Ph. xxix, 103.

American Opium, cultivated by Dr. H. Black, of Bolivar, Tenn., has been tested by Prof. Wayne, who finds it to contain 10·2 p. c. of morphia. Proceedings, 1867, A. J. Ph. xl, 77.

The variability of morphia strength in the different preparations of opium, has occupied the attention of the Br. P. Conf. at

its last sitting, and the opinion appears to prevail that the preparations should contain opium in proportion to its strength in morphia, or that morphia should be substituted for opium.

(This important question demands great caution and thorough investigation before a definite conclusion can be arrived at; it certainly does not appear judicious to graduate the strength of an opium preparation by the amount of morphia it may contain, for it contains besides a large number of other active principles, which, of necessity, play an important part in its therapeutic action. C. L. D.)

Argemone Mexicana. The thistle oil, obtained by expression from the seeds of this plant, abounding in Mexico, West Indies and East India, is employed by the native physicians of India as a reliable remedy in cholic, and externally for skin diseases. Ph. J. Trans. viii. 297.

CRUCIFERÆ.

Sinapis nigra. Cumney has examined two samples of volatile *oil of mustard*, one of which, having a sp. gr. of 1·015, he regarded as pure; the other, having a much lower sp. gr. (0·966) he suspected to contain alcohol, and proved such to be the case by distilling it at a temperature of 200° F. The alcohol distilled over, and the oil of mustard, having a boiling point of 298° F., remained in the retort. Ph. J. Trans. ix. 25.

Nasturtium officinale. Surgeon Wyatt employs this vegetable, and recommends it highly, as an alterative. Br. Med. Jour. April, 1868. A. J. Med. Sci. cxi. 261.

MYRTACEÆ.

Eucalyptus globulus. An infusion of the leaves of this Australian tree is, according to Dr. Ullersperger, used with decided success, in Barcelona and the neighborhood, for the treatment of fevers, and has been found preferable to quinia in several cases of intermittents. A. J. Med. Sci. cx. 526.

Barringtonia speciosa, the *Hutu* of Polynesia, is, according to Henkel, a handsome tree, remarkable for the splendor of its flowers, which subsequently mature into a plum-like fruit. The seeds are employed to narcotize fish. N. Jahr. Ph. 1867, 280.

ARALIACEÆ.

Panax quinquefolium. The genuine Manchoorian *ginseng* consists of a stem, from which the leaves spring, of a centre root from which two smaller roots branch off at the same point on opposite sides. The stem somewhat resembles the head and neck, the side roots the shoulders and arms of a man; the main root represents the body, and a fork, which the main root frequently forms, supplies the legs. It is to this peculiar formation that the Chinese appear to attribute its remedial qualities, believing that a plant which thus expands into the human form, must be intended to alleviate the sufferings of the human race. It maintains its reputation to this day, and is cultivated in some portions of China, chiefly in Manchooria and Corea. Ph. J. Trans. ix. 77.

MALVACEÆ.

Adansonia digitata. The leaves of the Boabab tree, one of the giants of the forests of Senegal, posesses, besides emollient, also febrifuge properties, and are found by St. Martin to contain an alkaloid, which he names *Adansonin.* It is, when pure, white, forms salts which crystallize in needles, and possesses a persistently bitter taste. Besides the alkaloid, the leaves contain extractive, tannin, chlorophyll and a soft wax, soluble in fixed and volatile oils. Bull. de thérap. lxxii. 360. N. Jahr. Ph. 97. xxix.

STERCULIACEÆ.

Theobroma cacao. Oleum theobromæ is the subject of a very valuable essay by Mr. Lincoln, in which he gives valuable information on its manufacture, adulteration, uses and commercial history. Proceedings, 1867, 347.

AURANTIACEÆ.

Citrus limonum. Oil of Lemon has been met with by C. Lewis Diehl, adulterated with 25 per cent. of an oil which he judges to be purified paraffine oil. A. J. Ph. xxxix. 387.

Prof. J. M. Maisch has also observed an adulteration of oil of lemon with petroleum oil, which is recognized by its specific gravity and almost utter insolubility in alcohol. Proceedings, 1867, p. 48.

HYPPOCASTANEÆ.

Æsculus hippocastanum. The horse-chestnut contains, according to Rochleder, *Æscigenin*, *Æscinic acid*, *Argyræscin* and *aphrodæscin*, which are produced from the tannic acid peculiar to the seed, during the process of maturing; *fraxine* and *quercetrine* appear also to be formed from it. The chemical action occuring during the process of reduction, appears to consist in the formation of a diatomic alcohol—C_{14} H_{10} O_4; from the acid, C_{14} H_6 O_6, the manifold intermediate products found in the plant forming a series, beginning with C_{14} H_6 O_6 and ending with C_{14} H_{10} O_4. N. Rep. Ph. xvi. 730.

TILIACEÆ.

Elæocarpus ganitrus, (Roxb.) The round, peculiarly wrinkled seeds of this tree are employed by the Brahmins, of India, for rosaries; in England they are used for making bracelets and necklaces, and when set in gold or silver are frequently very expensive. For a like purpose the seeds of *Monocera tuberculata* are employed. N. Jahr. Ph. xxviii. 16.

ANACARDIACEÆ.

Rhus toxicodendron. Prof. McDowell employs a solution of caustic potassa as a local application in cases of poisoning by the poison oak, and states that it has never failed to effect a cure. It should be used sufficiently strong to render the skin soapy. A. D. Cir. xii. 88.

Rhus succedaneum. *Japanese Wax* has lately been found in the Hamburg markets adulterated with *water*, some samples containing as high as 30 per cent., while most of it contained from 15 to 20 per cent. Wax thus adulterated loses its transparent and shining appearance, becomes opaque, white and very brittle. Arch. f. Ph. 1868., Jan. and Feb., 144.

Duvaua dependens (*D. C.*). This evergreen shrub is indigenous throughout Coquimbo, Santiago, Concepcion, etc., Chili. From the stems a purgative resin exudes which is employed in the form of plaster, spread on paper, as a specific for pains, contractions of the muscles and sinews, and for hernia. An

infusion of the seeds finds application as a remedy in hysteria, disorders of the urinary organs, &c. The seeds also enter the composition of a spirituous beverage resembling gin. v. Schroff. N. Rep. Ph. xvi. 723.

VITACEÆ.

Vitis Vinifera. In a preliminary notice on the chemical constitution of the grape vine, Reinsch states that the leaves contain tartar in such abundance as to render it highly probable that its extraction from them may become of commercial importance. Besides tartar, he found an abundance of sugar, dextrin, chenopodin and salts; and is of opinion that, by the addition of grape sugar to the expressed juice of the leaves, a very palatable and aromatic wine can be made by fermentation, to which end he promises to continue his researches. Experiments with the stems convince the author that the tartaric acid is found in the leaves, the stems containing principally starch and gum. N. Jahr. Ph. xxix. 86.

Grapes. The coloring matter of the black grape, which, it is well known, is not imparted by the skins to the juice unless they are fermented with it, is decomposed, according to Prillieux, in coming in contact with water, into a lilac-colored liquid and violet red grains. These grains being soluble only in alcohol, they do not impart their coloring properties to the juice until, by fermentation, it has acquired sufficient alcoholic strength. Viert. Jahr. Ph. xvi. 440.

Wines. Prof. J. M. Maisch suggests that the native wine grown in the northern States generates, during fermentation, a large proportion of acetic acid, and are therefore not as applicable to the uses of medicine as are those from the States farther south. He found some North Carolina wines well suited for this use, containing about 20 p. ct. of alcohol. Their unusually high sp. gr. was due to a large amount of extractive matter.

Crude Tartar. Mr. E. S. Wayne expresses the belief that a large proportion of the tartaric acid compounds consumed in the United States could be produced from native tartar, if the wine growers would take the trouble to collect it, or permit the re-

moval of the tartar from their wine casks. Proceedings 1867. A. J. Ph. xl. 75.

MELIACEÆ.

Azadirachta Indica. According to Dr. S. Pulney Andy, the tender leaves of this plant—known as margosa, and held in great veneration by the Hindus as one of their sacred plants—are efficient in the treatment of the small-pox, during the premonitory and progressive symptoms of the disease, but of little or no use after the eruption has passed the stage of maturation. He administers the remedy in the form of pills, combined with the stem of *Artemisia austerica* and liquorice root. Madras Quart. Jour. Ph. J. Trans. ix. 392.

SAPINDACEÆ.

Paullinia sorbilis (*Guarana*). Th. Peckolt has analyzed the seeds of this plant, which yield the guarana, and finds them to contain caffein, yellow fixed oil, brown-green soft resin, red resin, resinous matter, nitrogenous extractive, red coloring matter, amorphous bitter principle, guaranic acid, saponin, gallic acid, iron-greening tannic acid, albuminous matter, starch, glucose, dextrin, pectin, mucilage, malic acid and cellulose. For valuable information on the preparation, form and uses of guarana in Brazil, see N. Jahr. Ph. xxviii. 33.

POLYGALACEÆ.

Krameria cistoidea (*Hook*). This small shrub abounds in the hills of Coquimbo, and is valued in Chili for its root, which is a substitute for the rhatany root of our materia medica. It greatly resembles the officinal root, and contains a large percentage of tannin and coloring matter. Medicinally it is used for its astringent properties; technically as a dye. v. Schroff. in N. Rep. Ph. xvi. 720.

LEGUMINOSÆ.

Arachis hypogœa. Oleum hypogœæ. Schrœder finds that this oil is not as difficult to saponify as has been stated by Messrs. Gössmann and Scheven; the author having obtained a perfectly white and odorless soap by boiling the oil with dilute solution of caustic soda for from 2 to 3 hours. Ann. Ch. Ph. cxliii. 22.

Cassia obovata (Jamaica Senna). Hon. Richard Hill suggests that it is desirable to cultivate the Cassia obovata, which is now found growing wild and plentifully in certain parts of Jamaica. This would ensure a sufficient supply for exportation to the United States and Great Britain. Ph. Jour. Trans.

Senna. F. W. Sennewald has not succeeded in obtaining chrysophanic acid, according to the process of Batka, from either Alexandria or India senna. Proceedings, 1867.

Adantheria pavonia. The seeds of the corral ires, which abound in India and tropical South America, are used, according to Henkel, by the jewelers of India as weights, weighing almost uniformly 4 grains. Owing to their magnificent red color, they are also largely used as ornaments. N. Jahr. Ph. xxviii. 17.

Copaiva. Dr. F. A. Flückiger obtains *copaivic acid* by shaking copaiva with from one-tenth to one-sixth its volume of concentrated solution of carbonate of ammonia; aiming to obtain a clear solution of copaiviate of ammonia at the bottom. An excess of ammonia or water will cause the lower liquid to become turbid, for which reason it is necessary to determine the precise amount of solution of carbonate of ammonia when large quantities are operated upon. On addition of acetic acid to the clear substratum, the copaivic acid separates in the form of microscopic crystals, if the conditions are favorable; when the process is not carefully executed, the acid is precipitated as an amorphous mass. N. Jahr. Ph. xxviii. 129.

Melilotus vulgaris. Reinsch has found cumarin in such quantities in this plant, that he suggests it as a source for this principle. N. Jahr. Ph. xxviii. 65.

Balsamocarpon brevifolium, Clos. This small shrub, abounding on the hills of Coquimbo, Chili, is remarkable for its fruit, which contains much tannin, and when mature its pericarp is converted into a very brittle astringent resin. It is an article of commerce used chiefly for dyeing and the manufacture of ink. v. Schroff, in N. Rep. Ph. xvi. 724.

TEREBINTHACEÆ.

Spondias dulcis, called *vi* by the Australians, abounds in

Polynesia, and bears an edible fruit of about the size of a goose egg, possessing a sweet and pleasant pulp; the peel has a terebinthinate taste. The wood is valued for building boats. N. Jahr. Ph. 1867, 277.

Amyris elemifera. Prof. Henkel has received several samples of Mexican elemi, which are distinguished from the ordinary commercial article by their penetrating odor. It consists of irregular hard, pale yellow pieces, having a glassy and conchoidal fracture. The author states that the above plant undoubtedly yields this gum, which is collected in Yucatan. N. Jahr. Ph. xxix, 16.

ROSACEÆ.

Margyricarpus setosus (R. et. P.) This shrub-like plant abounds on dry hills in Chili, from Aquimbo to Valdivia. The herbaceous portion and root are employed by the country people for various diseases; in regular practice it is used chiefly for diseases of the bladder. v. Schroff. N. Rep. Ph. xvi, 724.

Potentilla tormentilla. By experiments, Rembold finds that tormentilla root contains, besides ellagic acid, and a peculiar tannic acid (tormentilla-tannic acid, splits into tormentilla red and glucose by the action of dilute mineral acids), *Kinovic acid*, which has hitherto been considered a characteristic constituent of the cinchona barks. (See organic acid in this report.) Ann. Ch. Ph. cxlv, p. 5.

Quillaya Bark. Böttger states that, with a decoction of this bark, bubbles can be obtained, which, resembling soap bubbles, are characterized by extreme tenacity, and may be applied to numerous physical experiments. A decoction will remain serviceable for years. J. f. prak. Ch. ciii, 313.

Pyrus malus. Apple tree bark contains, according to Rochleder, besides phloridzin, a yellow coloring matter, which he has named *quercetin.* The seeds contain amygdalin. Ch. C. B. Aug. 7, 1867.

Oil of Bitter Almonds being perfectly soluble in liquid bisulphite of soda, this characteristic is applied by Prof. Wagner as a test for the presence of nitro-benzole, which is entirely insoluble in this reagent. A. D. Cir. xi, 223.

CUCURBITACEÆ.

Elaterium. Dr. A. G. Craig reports the case of an old lady (aged 70 years) who died from the effects of two-fifths of a grain of elaterium, administered by him during an advanced dropsical condition of the patient. He therefore warns physicians against commencing with the dose of elaterium recommended in the U. S. Dispensatory, 12 ed., p. 364. A. J. Ph. xl, 373.

TERNSTROMIACEÆ.

Thea Chinensis. Messrs. Grundherr and Hertell exhibited, at the meeting of the South German Apothecaries' Association, at Nuremberg, Bav., a very complete collection of teas, accompanied by a paper, in which their sources and preparation are considered. It appears that all the teas are collected from the same plant, but their quality is subject to climatic influence, soil, culture and preparation. The tender tops of the shrub yield the finest teas, while the lower leaves yield the common kinds. The first crop yields also finer teas than subsequent crops, which are successively of poorer quality to the fifth or sixth crop. The green teas are not colored by drying on copper plates as is generally supposed, although some varieties are colored artificially, but with perfectly inert substances. The black teas have to undergo a process of fermentation before they are dried, and lose thereby a portion of their narcotic action. N. Jahr. Ph. xxviii, 201.

Theine. Dr. Leven sums up the physiological action of theine, as compared with caffeine, as follows:

1st. Theine and caffeine, considered as one and the same alkaloids by chemists, seem to produce different toxic effects upon animals submitted to their action.

2d. Theine is a less powerful toxic than caffeine, and it is only when given in double doses that the former produces the toxic effect of the latter.

3d. Theine also produces convulsive movements in the limbs, which Dr. L. has not observed from the action of caffeine.

4th. In other respects their physiological effects are identical. A. J. Med. Sc., cxi, 260.

UMBELLIFERÆ.

Conium maculatum. Dr. John Harley has instituted numerous experiments on the medicinal properties of the fresh juice of hemlock root, and concludes that in medicinal doses it is quite inert, and that the root is not poisonous even when taken in such quantities as would supply the place of vegetables in an ordinary meal.

We give the following characteristics of the fresh juice: It is a brownish-white liquid; has a sp. gr. of 1·022, decided acid reaction; carroty odor and taste, leaving a slightly benumbing sensation on the tongue. Heated with KOHO it gives off the odor of conia, but not as strong as the juice from the leaves. It gave reactions indicating the presence of albumen; sugar in large quantities; Cl and PO_5 in abundance; SO_3 a trace; NaO, CaO and MgO. One fluidounce yielded 20 grs. of extract and 1·3 grs. of ashes.

The product obtained by distilling the extract with KOHO and neutralizing with SO_3, contained sulphate of ammonia and a little oily matter, which, although it gave off the odor of conia quite strongly, when heated with KOHO, appeared to consist mainly of one of the two new principles *rhizoconine* and *rhyzoconyline*, mentioned below. It had formed into stellate groups of minute crystals on standing a few days.

The residue in the retort, which was a dry mass evolving an acrid odor resembling oil of tobacco, yielded, after liquefaction with a little water, to a mixture of 1 p. chloroform and 5 p. ether, a partly waxy and partly crystalline substance, which the author designates as ethereal extract, and is composed of three distinct bodies, two crystalline—*rhizoconine* and *rhizoconyline*—the other a resinous substance—*conamarine*. The method pursued for their separation and their characteristics are also described. See Ph. Jour. Trans. ix, 53.

Oleum anisi. Bautereau states that congelation of this oil is no criterion of its purity, as oil containing 1 part of alcohol in 6 p. will congeal as readily as the pure article. Even when adulterated with its weight of alcohol it will congeal, although not by any means as readily. Viert. Jahr. Phar. xvii, 105.

Assafœtida has been found by Prof. J. M. Maisch, in the Philadelphia markets, adulterated with a mixture of sulphate of lime and a resinous preparation of assafœtida. Apparently these were fine specimens of assafœtida, until upon close examination the inside was found to consist entirely of sulphate of lime.

Similarly adulterated myrrh has been observed by the Professor. Proceedings 1867, p. 43.

Cachana. Under this name Prof. Henkel describes a root which is employed largely by the Mexicans in their domestic practice, and which, by its anatomical structure, he classes among the Umbelliferæ. It possesses a sweet, balsamic and subsequently bitter taste, and a peculiar tar-like odor. N. Jahr. Ph. xxix. 24.

RUBIACEÆ.

Cinchonas. The experiments of Dr. Squibb would indicate that alcohol (sp. gr. 0·835) is a better menstruum for exhausting the cinchona barks than diluted alcohol. The alcohol yields a larger amount of extract, containing a slightly larger percentage of alkaloids; the extract prepared with alcohol containing 14·1 per cent.; that prepared with dilute alcohol 13·33 per cent. The use of alcohol has the advantage, that less heat is required for its concentration, and that the extract produced forms a clear solution in mixtures of alcohol and glycerine, or glycerine containing not more than one-fourth its volume of water. The value of glycerine for preventing deposits in the liquid preparations of the cinchonas is regarded by the author as established. The deposites formed in the tincture of bark—prepared either with strong or dilute alcohol—contain but a small percentage of the alkaloids; not sufficient to materially alter their characters. A. J. Ph. xxxix. 398 and 408.

Grey Barks. Mr. Broughton has analyzed barks of the *crispa* variety of cinchona, produced on the Neilgherry plantations, India, and finds that they are among the richest in their yield of alkaloids, although they do not contain *quinia*. The author is conducting experiments for the determination of the best season for cropping the bark on a large scale, the various methods for drying the bark for exportation, the influence of

soil and the effects of mossing the bark, &c., &c. Ch. N. Dec. 6, 1867.

Coffea Arabica. It has heretofore been the practice of the Brazilian planters to abandon the old coffee plantations as soon as they ceased to yield profitable crops, and to select new sites; but, according to Prof. Agassiz, several planters are now fertilizing their exhausted plantations, and find that the young shrubs promise to yield as abundantly as if they had been planted in virgin soil. A Journey to Brazil, by Agassiz.

Caffein. The experiments of Dr. Leven on the physiological and therapeutic action of caffein are quite interesting. It appears to stimulate the heart directly. When first absorbed the circulation and respiration are accelerated, the pulse is more frequent and firmer, and the secretions more active. It may be given to man in doses of many grammes without injury. A. J. Med. Sc. cx. 525.

Coutarea latifolia (D. C.). This tree, abounding on the west coast of Mexico, furnishes a bark which is called *copalchi*, but must not be confounded with the copalchi barks obtained from various species of *croton*, over which it possesses decided superiority. The sample examined by Prof. Henkel consisted of pieces averaging 8 inch. long by 2 wide, externally covered with a soft, faint yellow or whitish epidermis, while the innre bark is yellowish to dark brown. It possesses no odor; an intensely but pure bitter taste without aroma; it is employed by the natives for the same purposes as Peruvian bark. N. Jahr. Ph. xxix. 17.

COMPOSITÆ.

Tanacetum vulgare is used by Dr. Uhle with decided advantage as a remedy in epistaxis, and he states that he has never failed in arresting hæmorrhagia immediately. Dent. Cos. ix. 275.

Helianthus tuberosus. Dubrunfaut finds that the expressed juice of the tubers, gathered in March or April, contains considerable quantities of cane sugar and some uncrystallizable sugar; while tubers gathered in September contain a large percentage of inuline; thus showing that the inuline is, during the time

intervening between September and March, converted into sugar. N. Rep. Ph. xvi. 698.

Eupatorium salvia grows on the hills of the central provinces of Quillota, Valparaiso, Rancagua, etc., Chili, and is employed medicinally as a nervine. v. Schroff. N. Rep. Ph. xvi. 717.

Baccharis confertifolia. This evergreen shrub, abounding in Chili, is employed medicinally as a tonic, febrifuge and diuretic, and, locally, to wounds. From a number of varieties of Baccharis (commonly called chilquilla,) resin and wax are obtained; the latter being formed by the agency of an insect. Ibid. 716.

Haplopappus Bailahuen abounds on the Cordilleras in the province of Coquimbo, Chili, and is employed by the country people for the wounds of horses and other animals. An infusion of the bark of the branches—which contains an abundance of resin—is employed against cholic. Ibid. 717.

Flotovia diacanthoides. This plant, commonly called *Palo mao* and *Fallu* by the Chilians, abounds in the southern provinces of Rutuco and Ranco. A decoction of the bark is employed and praised for the treatment of convulsions. Ibid. 717.

Grindela robusta. A syrup prepared from the herbaceous part of this plant has been employed by Dr. Gibbons with decided benefit in the treatment of asthma. The plant abounds throughout California, and is characterized by the peculiarity that a drop or two of a resinous, milky liquid always adheres to the calyx of the flowers. This liquid possesses an aromatic taste and odor. Ph. Z. Russ. vi. 829, from Pac. Med. Jour.

Mata, so called by the Mexicans, is in common use in New Mexico as an addition to tobacco in smoking, imparting an agreeable odor, and at the same time corrects or prevents the disagreeable odor of stale tobacco smoke upon the clothing and in apartments. Prof. Maisch, who has examined the fruit, plant and flowers raised by Prof. E. S. Wayne, finds the plant to correspond very closely with the description of *Eupatorium incarnatum* (Walter), which is indigenous to Texas and as far east as Florida and Georgia. Proceedings 1867, p. 400.

GNELACEÆ.

Ephedra Americana (Bert). The fibres of the bark of this plant, abounding throughout Chili, are employed for rope making, &c. It is popularly called Lolupe or Pingo-pingo, and is most abundant on the western slope of the Cordilleras. N. Rep. Ph. xvi. 712.

AQUIFOLIACEÆ.

Villaresia mucronata (R. et P.) Thisbeautiful tree abounds in the southern provinces of Chili, between lat. 33 and 36. It is believed by the natives to cure hernia when the patient is caused to touch the tree. O'Higgins made great efforts at one time to introduce the leaves of this tree in the form of infusion as a beverage in substitution of the more expensive *Maté*, but without success, although his hopes seemed to be justified from the fact that it belongs to the same family from which the Maté is obtained. The bark contains an abundance of starch and crystalline lime salt. A sample examined by v. Schroff consisted of pieces about 15 to 20 centimeters long, 6 to 7 broad and about 1 centimeter thick; the outer bark is covered with a whitish grey moss, and is deeply corrugated; the inner surface is of the same color and exhibits very fine, somewhat twining, parallel fibres. N. Rep. Ph. xvi, 721.

SAPOTACEÆ.

Inocarpus edulis, the south-sea chestnut tree, called *If* by the natives, abounds on Rotuma, one of the Polynesian Islands, bears a flat, kidney-shaped fruit, which, when roasted, tastes not unlike our chestnuts and is valued highly. Prof. Henkel in N. Jahr. Ph. 1867, 278.

SCROPHULARIACEÆ.

Digitalis has been employed successfully by Dr. J. D. Brown in the treatment of suppression of urine. He applies it externally as a poultice to the abdomen, in the form of leaves, bruised and mixed with warm water, and in the form of tincture mixed with warm flaxseed poultice. A. J. Med. Sc., cx, 537.

Calceolaria thyrsiflora (*Grah.*) This plant abounds in vari-

ous sections of Chili. It contains sugar and yellow coloring matter and is used principally for dyeing. Other species are used medicinally; *C. trifida* as a febrifuge; *C. corymbosa* as a diuretic, and *C. pinnata* as a purgative. N. Rep. Ph. xvi, 719.

Calceolaria arachnoidea (Grah.), grows upon the high sections of the Cordilleras from Coquimbo to Concepcion. Its root, familliarly known as *relbun*, is an article of commerce, furnishing a handsome red dye, which is contained in the cortical portion. Ibid.

VERBENACEÆ.

Verbena erinoides, called "*yerba del incendio*," in Chili, is used medicinally to relieve the painful inflammation in gonorrhœa, and has general diuretic and emmenagogue properties. It abounds in the hilly regions of the republic. N. Rep. Ph. xvi, 718.

V. litoralis also abounds throughout the republic, and is employed medicinally for forming ointments and cataplasms. Ibid.

LABIATÆ.

Salvia officinalis is recommended in the form of decoction by Vignard, for the relief of profuse sweating. He employs a large teaspoonful of the chopped leaves to 6 fluidounces of water, boils a few minutes and, after cooling, filters and sweetens to the taste. A. D. Cir. xi, 183.

Rosmarinus officinalis. Dr. Unger presented to the Wien. Akad. der Wiss. a paper on rosemary and its industrial importance in Dalmatia, in which he gives a succinct account of its cultivation and characters, and recommends that its culture, as also the distillation of the ethereal oil, be conducted in a more economical and practical manner, on account of the increasing scarcity and demand.

SOLANACEÆ.

Solanum tuberosum. By experiment, A. Ott has determined that the sweet principle of frozen potatoes does not exist while they are frozen, but is formed on thawing, and that it is uncrystallizable sugar. Ch. News, Ap. 3, 1868.

Atropa belladonna. The experiments of Dr. Ogle prompt him to the conclusion that the poison is not absorbed into the system of rabbits. These can live upon belladonna entirely for a period of 6 days, and can tolerate enormous doses of atropia.

Nicotiana tabacum. According to Böttger, *prussic acid* is readily detected in tobacco smoke by Braun's picric acid test. The smoke is passed by means of an aspirator through caustic soda solution, contained in a Liebig's bulb tube; on adding a few drops of solution of picric acid to the solution and heating, the characteristic red color of isopurpuric acid is produced. Sulphhydric acid is readily detected by passing the smoke through a solution of nitro-prusside of soda containing a little ammonia. By the aid of spectral analysis, *lithium* is also detected. N. Rep. Ph. xvi, 572.

Latua venenosa. The stems of this plant, described by Rosenthal as a questionable species of *solanaceæ*, and as highly poisonous, are described by v. Schroff, in N. Rep. Ph. xvi, 718. They consist of cylinders of uniform thickness, about 25 centimetres long and 3 c. m. thick, are of a dirty grayish-yellow color and slightly corrugated. The ligneous portion is white and possesses several concentric rings. It is nearly hollow, containing small remains of a brownish-black cellular tissue. It appears to contain a resin.

GENTIANACEÆ.

Gentiana lutea. Gentian root, as found in the market, was found by Magnes to contain 12 p. c. of glucose, and, when dried at a temp. of 212°F. (by which it lost 17 p. c. of water), 15 p. c. of glucose. A. J. Ph. xl, 333.

Frazera Walteri. Mr. F. W. Thomas has experimented upon the American colombo root, with a view to determine its chemical constituents, and found gum, pectic acid, fixed oil, resin, yellow coloring matter, waxy matter, and a yellow crystalline principle, which appears to possess acid properties, and bitter extractive. When subjected to distillation with water, an odorous distillate was obtained. It does not contain albumen, starch or berberina. A. J. Ph. xl, 309.

APOCYNACEÆ.

Strychnos nux vomica. Dr. John Bartlett strongly recommends a solution of common salt as an antidote to strychnia poisoning. He reports a number of experiments on dogs, and invariably met with success. A. D. Cir. xi, 1868.

Echites Chilensis. The root, called *Quilmai* in Chili, is used in the form of powder as an emetic and sternutatory. v. Schroff. N. Rep. Ph. xvi, 717.

OLEACEÆ.

Olea Europœa. The decrease in the exports of olive oil from Trieste and other ports, is owing to the increased production of cotton seed oil, which finds extensive application as a substitute for the more expensive oil. In England cotton seed oil is now manufactured of remarkable purity. N. Rep. Ph. xvi. 766.

ARISTOLOCHIACEÆ.

Aristolochia chilensis. This plant, commonly called by the Chilians, "*Herbe de la Vierge Marie ou Oreille de Renard,*" abounds on sunny hillsides and in sandy soil along the coast of the central provinces of Chili. Its root resembles that of *A. longa* very closely, and possesses a peculiar odor, reminding of that of opium; a recent fracture presents a saffron-yellow surface. It is employed medicinally in the treatment of female diseases attending confinement. v. Schroff. N. Rep. Ph. xvi. 715.

GUTTIFERÆ.

Calophyllum inophyllum (Lam.), called by the natives of Australia *Tifan*, is a high, numerously-branched tree, from the trunk of which a resin is collected and used by the Polynesian beauties as a pomade. In its dry state it forms the *tacamahac resin* of commerce. Its fruit yields a yellow coloring matter; the scraped bark is used to perfume stuffs woven from the bark of the *paper tree.* Prof. Henkel in N. Jahr. Ph. 1867, 277.

PHYTOLACCACEÆ.

Anisomeria drastica (Moq.) abounds in stony sections of the Cordilleras of the central provinces of Chili, and bears great

resemblance to *P. decandra*. The root is a powerful emetic and drastic, and most probably contains resin, starch and sugar. v. Schroff. N. Rep. Ph. xvi. 720.

CHENOPODIACEÆ.

Atriplex hortensis. This vegetable, used in Europe frequently as a substitute for spinach, contains considerable quantities of oxalate of soda, according to the experiments of Reinsch. Oxalates of lime and potassa are of frequent occurrence in plants, but the soda salt has seldom been observed as a component of plants. N. Jahr. Ph. 1867, 287.

POLYGONACEÆ.

Rheum palmatum. According to experiments by Kubly, the tannic acid of rhubarb (C_{52} H_{26} O_{28}) is, by the action of dilute mineral acids and assimilation of 2 eq. of HO, split into *rheic acid* (C_{40} H_{16} O_{18}) and sugar (C_{12} H_{12} O_{12}). For this reason it is not possible that rhubarb can contain *gallic acid*, as asserted by Brandes and others. The author obtained, by the process of Brandes for obtaining gallic acid from rhubarb, a colorless, crystalline substance of composition C_{10} H_6 O_4, which approximates very closely to that of *cantharidin*. It is colorless, tasteless, insoluble in ether, nearly insoluble in cold water and cold alcohol, and sparingly soluble only in these menstrua at boiling temperatures. Its solutions are not affected by persalts of iron; it is readily dissolved by alkaline solutions, from which it is again precipitated on addition of acids in excess. Viert. Jahr. Ph. xvii. 5.

Chorizanthe pedunculatis (Benth.). This small shrub, which at its base is numerously branched, abounds on the Cordilleras of Coquimbo, at a height of 10,000 feet. It finds application for various purposes in Chili, but these are not specified. v. Schroff. in N. Rep. Ph. xvi. 712.

PIPERACEÆ.

Piper cubeba. Mr. F. V. Heydenreich's experiments indicate,

1st. That the diuretic properties of cubebs reside in the *soft resin*.

2d. That *cubebin*, as compared with the other constituents of cubebs, is inert.

3d. That the *volatile oil* acts as a carminative and stimulant, producing, in large doses, the unpleasant effects of volatile oils having similar properties. Proceedings 1867, p. 337.

According to Dr. Bernatzik's experiments, neither the volatile oil, cubebin or soft resin, possess any remedial value in the treatment of gonorrhœa, and the remedial value must be attributed to *cubebic acid*. He proposes that this acid be used preferably in its pure state, or as *extractum cubebarum resinosum*, or in the form of powdered cubebs from which the oil has been removed. A. J. Med. Sc. cvii. 534.

DIPTERACEÆ.

Dryobalanops camphora. Dr. F. A. Flückiger has communicated a valuable paper on the history of camphor, in N. Rep. Ph. xvii, 28. Among numerous interesting points, he draws attention to the odorless crystals observed on a block of the trunk of *Dryobalanops camphora*, at the Kew Museum, London, which are evidently but slightly volatile, as they have been exposed to the atmosphere for over 10 years. These crystals are heavier than water, volatile at a temperature from 95° to 100° C., without odor, and may be sublimed, forming long needles. Their composition approximates to $C_{20} H_{22} O_6$, which would indicate some relation to oil of camphor $C_{20} H_{16}$; this, by the addition of 6 eq. of water, becomes the above resin. Besides this resin, this camphor tree contains an amorphous resin, not volatile, and sparingly soluble in 75 p. ct. alcohol. The Dryobalanops and Laurineæ camphor appear to differ in their crystalline structure.

LAURACEÆ.

To detect adulterations of natural with artificial Camphor. J. W. Bailey recommends that a small portion of the suspected article be dissolved in a drop of alcohol on an object glass and allowed to evaporate. The crystals formed will exhibit handsome colors, when viewed by the aid of polarized light, if the camphor is natural; but not if it is composed of artificial camphor. N. Rep. Ph. xvi. 763.

Refining Camphor. Perrel has written a valuable paper on the purification of camphor, from which the following is extracted: Crude camphor is contaminated with ammonia salt, sulphur, tar-like matter and vegetable residues. Japanese camphor is purer than the Chinese. The crude article is comminuted, properly mixed with 3 to 5 p. c. of lime, and, if it contains sulphur, with 1 to 2 p. c. of iron filings. This mixture is introduced into glass balloons of 6 kilogrm. capacity (the neck of which is short and of 5·7 centimetres diameter,) and filled up to the commencement of the neck. They are placed in sand baths (which, together with the furnace, are minutely described by the author) and well covered with sand; heat is then applied until 120° C. is reached, and they are kept at this temperature for half an hour, and then for about 3½ hours at from 190° to 196°C., the mouth of the baloon being open. The camphor will all have melted then, when the sand is gradually removed until about half the balloon is exposed and the mouth closed with a plug. Sublimation now commences, and is continued until, on removing a further portion of sand, the bottom of the balloon is found dry. During the sublimation the mouth of the balloon is opened every five minutes and an iron rod passed through to permit the escape of water. If a uniform temperature is maintained, the result is always satisfactory and the process completed in 24 hours. The balloon is broken to remove the camphor. Crude Japanese camphor loses from 1 to 4 p. c.; crude Chinese 5 to 6 p. c. Bull. Soc. Chim., Nov. 1867. Ch. C. B., Ap. 15, 1868.

THYMELACEÆ.

Daphne pillu. The bark of this shrub, which abounds in the neighborhood of Valdivia, Chili, is employed, empyrically, as an emetic and purgative by the Chilians, but its use is attended with considerable danger. In regular practice it is employed like cortex mezerei, and technically its fibres find application in rope making. v. Schroff, N. Rep. Ph. xvi, 715.

PROTEACEÆ.

Lomatia obliqua (R. Br.) According to local authority, this small tree, abounding in Chili, contains among its constituents

Lomacin, Lomacilo, neutral principle and a variety of *tannic acid.* Its wood being capable of receiving a high polish, is much valued; the bark has purgative properties. v. Schroff, in N. Rep. Ph. xvi, 715.

SANTALACEÆ.

Myoschilos oblonga (R. et. P.) The stems and leaves of this shrub are used, in Chili, medicinally; the former in the form of infusion against amenorrhœa, the latter as a purgative. It grows throughout Chili but is not abundant; its fruit is the favorite food of an animal which Molina calls *mus coypos.* v. Schroff, in N. Rep. Ph. xvi, 714.

EUPHORBIACEÆ.

According to Dr. Warring, citric acid has been used with marked success as an antidote to poisoning, by various euphorbiaceæ, especially the seeds of *Curcas multifida* and the roots of *Manihot utilissima.* According to the author's views, all vegetable acids may be found similarly efficacious. Viert. Jahr. Ph. xvi, 449.

Euphorbia Chilensis. The root is employed by the Chilians as a violent, drastic cathartic; the plant abounds throughout the provinces of Coquimbo and Valdivia. v. Schroff, in N. Rep Ph. xvi, 722.

Euphorbium, when pure and properly collected, is, according to Dr. Flückiger, composed in 100 parts, of 38 p. resin, 22 p. euphorbon, 18 p. gum, 12 p. salts of malic acid, and 10 p. of inorganic matter. When it is boiled it gives off a peculiar odor, different from that of the drug in its ordinary state, and reminding of that of Lactuca virosa. Water dissolves 32 p. c., forming, when filtered, a light yellow solution, which reacts acid and contains the mallates, gum and euphorbon. Viert. Jahr. Ph. xvii, 82.

Kamala. A new kind of kamala, differing materially from that obtained from *Mallotus Philippinensis,* is described by Dr. Flückiger. There is no doubt that this kamala belongs to another plant. It differs somewhat in its general structure from the ordinary article, and is easily distinguished when heated to 200° or 212° F., assuming, at that temperature, an intense black

color, while ordinary kamala does not undergo any change at these temperatures. The alcoholic tincture of this new kamala leaves, when evaporated spontaneously, microscopic crystals, which the author takes to be *rottlerine*. A. J. Ph. xl, 140.

Croton draco. The so-called *resina crotonis draco*—the *sangredraco*—of the inhabitants of western Mexico, has been examined by Prof. Henkel, who states that it is erroneously considered to be allied to the dragon's blood of our Pharmacopœias, and that it, on the contrary, resembles *Kino* most closely, having its general appearance and astringent taste, and forming, with water, a brown-red, astringent solution, which is colored green-black by sesqui-salts of iron. N. Jahr. Ph. xxix, 15.

Hura crepitans (Lin.) The seeds of this tree are employed by the Mexicans as a severe drastic cathartic, one seed sufficing to purge violently and even to produce emesis frequently. They are called by the natives "*habilla*," are perfectly circular, nearly flat and of an ash-gray color. They are odorless and possess an oily, somewhat sweet and acrid taste. N. Jahr. Ph. xxix, 19.

URTICACEÆ.

Bœhmeria nivea (Hook.) This species of nettle, known with us as the Chinese grass plant, abounds in Australia, where it is used for weaving exceedingly fine fabrics. Prof. Henkel in N. Jahr. Ph. 1867, p. 279.

This plant is about to be introduced in this country, and may prove very valuable to our agricultural and manufacturing interests.

Antiaria toxicaria. The milky juice of this tree has been the subject of some preliminary examination by De Vry and Ludwig. Its sp. gr. is 1·06; when dried it yields 37·9 p. c. of resin, which is soluble (being 47 p. c. of residue,) in petroleum (having a boiling point of 50° to 60° C.) The solution thus obtained contains an amorphous resin, a caoutchouc-like body and a fat containing oleic, palmitic and stearic acids. Alcohol dissolves from the residue (after treating the inspissated juice with petroleum) a new glucoside, "*antiarin*," which is convertible, by the action of dilute mineral acids, into a yellow resin and

sugar; an organic acid and saccharine matter are also dissolved by the alcohol, while the residue is composed of albumenoid matter, probably *legumin*. J. P. Ch. ciii. 253.

MONIMINACEÆ.

Boldoa aromatica. This handsome tree, every part of which is aromatic, abounds in the central provinces of Chili, growing most abundantly on the sunny declivities of the mountains. The strongly aromatic leaves and bark are employed in the form of aromatic baths in the treatment of rheumatisms; an infusion of the leaves is used as a diuretic; its juicy fruit is edible; the wood yields excellent charcoal and the bark may be used for tanning. v. Schroff, in N. Rep. Ph. xvi. 713.

ONAGRACEÆ.

Oenothera Berteriana (Spach.), a plant which, owing to the beauty of its flowers, is frequently cultivated, abounds in the sandy soil bordering the smaller streams of Coquimbo and Cauquenes, Chili, and enjoys quite a reputation as a local application to wounds, contusions and bone felons. v. Schroff, in N. Rep. Ph. xvi. 723.

JUGLANDACEÆ.

Juglans regia. By his experiments, Rochleder has determined the presence of a considerable amount of oxalic acid in the male florets of Juglans regia. *Nucin* does not appear to preëxist in them, but the author has found in them a substance which, by the action of dilute mineral acids, is split into nucin, and other substances not determined. Ch. C. B. July 17, 1867.

MYRICACEÆ.

Casuaria equisetifolia (L.) This neat Australian tree, called "*toa*" by the natives, is utilized by them for various purposes. On account of its beauty it is a favorite tree at their burial places. Its astringent bark yields a red coloring matter, used by the Tahitians as a dye; the ashes of the wood, being quite rich in potash, are used for making a crude kind of soap. The wood, owing to its extreme hardness, called iron wood in Europe, is used by the natives for their clubs, spears, &c. Prof. Henkel, in N. Jahr. Ph. 1867, 277.

CONIFERÆ.

Abies excelsa. Burgundy Pitch. Mr. Daniel Hanbury has taken considerable trouble to find the sources of the present commercial supplies of true Burgundy pitch, and in a paper to the Br. Pharm. Conference, gives the following conclusions.

1. True Burgundy pitch is the melted and strained resin of *Abies excelsa*, (*D. C.*)

2. An artificial compound is usually sold in lieu of it, both in this country, (England) and on the continent.

3. True Burgundy pitch is produced on a large scale in Finland; also of fine quality in Baden and in Austria.

4. True Burgundy pitch differs palpably from the artificial, and may be easily distinguished from it.

The following distinguishing tests are given by Mr. H.

True.	*Artificial.*
Color dull yellowish brown, fracture shining, conchoidal, translucent; some samples contain much water and are opaque and of a dull gray color, and require draining to free them from impurities.	Color usually more brilliant than that of true Burgundy.
Odor peculiarly aromatic.	Odor weak and hardly aromatic.
Not wholly soluble in alcohol of 0·838, but leaves a small amount of fine white flocculent matter.	Still less completely soluble in alcohol of 0·838 sp. g.
Placed in contact with double its weight of glacial acetic acid in a vial, it is dissolved, with the exception of a small amount of flocculent matter.	Similarly treated, forms a turbid mixture, which soon separates in two layers, a thick oily liquid above and a bright solution below.

Proc. Br. Ph. Conf. 1867, 15. Ph. Jour. Trans. ix, 162.

Pinus palustris. Oleum terebinthinæ, contaminated with copper, has met the observation of C. Lewis Diehl, who separated

the copper readily by shaking the oil with a little concentrated solution of prussiate of potassa. A. J. Ph. xxxix.

Resina. In the Richmond Med. Journ. it is stated that an eminent physician of that city recommends pulverized resin as the best styptic known, and that it will succeed when others fail. It is to be used on cotton or lint. Dent. Cos. ix, 276.

Fitz-Roya patagonica (*Dalt. and Hook.*) Of this gigantic tree, abounding on the Cordilleras in the neighborhood of Chiloe, the bark and resin are in use in Chili. The fibres of the bark are used for various technical purposes; the resin yields a good varnish. v. Schroff, in N. Rep. Ph. xvi, 712.

BROMELIACEÆ.

Agave Americana. The pulp of the leaves, constituting the bulk of *Agave*, is said to act like mustard, and has been used as a rubefacient in veterinary practice. A. J. Ph. xl, 334.

Puya spec. Gomme de Chagual. This handsome, transparent gum of Chilian pharmacy has a conchoidal fracture, a blistered surface and a pure mucilagenous taste. It is derived from various species of *Puya*, probably *P. coarctata*, *P. alpetris*, and *P. cærulea.* In the first mentioned species, the stem is popularly named *chagual* or *maguey*, the leaves *cardon*, and the flowers *puya.* The bark of the stem is used as cork. v. Schroff, in N. Rep. Ph. xvi, 711.

The gum *chagual*, examined by Pribarm, contains about three-fourths of its weight of soluble gum, which when dried from its solution, is again entirely soluble in water. It differs from gum arabic by not giving a precipitate with silicate of potassa, in forming a precipitate with sugar of lead and in not being thickened by solution of borax. Viert. Jahr. Ph. xvi, 366.

IRIDACEÆ.

Libertia ixioides (*Spreng.*) The root of this plant, known in Chili popularly as *calle-calle*, consists of a thick main root, to which a number of very thin, long, yellowish, twining rootlets are attached. An infusion of the root acts as a purgative, and is also said to be a good diuretic. v. Schroff, in N. Rep. Ph. xvi, 710.

MELANTHACEÆ.

Veratrum viride. Mr. Charles Bullock states that the alkaloids of Veratrum viride, when recently precipitated, possess a peculiar odor, recalling faintly that of the alkaline *hypochlorites.* Proceedings 1867. A. J. Ph. xl, 63.

Veratria, in the form of ointment made of 30, 40 or 50 centigrm. of veratria, 25 centigrm. morphia, and 30 gram. lard, is highly recommended by Hector Bertrand for neuralgia. A cure is commonly effected by rubbing it along the course of the affected nerve, and repeating 3 to 4 times at intervals. A. D. Cir. xi, 275.

Stenanthium frigidum (*Kunth.*) The root of this Mexican plant which, according to Schafner, contains *veratria* in abundance, is described by Prof. Henkel, in N. Jahr. Ph. xxix, 23. In its anatomical structure it resembles the roots of Veratrum album very closely; it possesses no odor, but a persistently bitter and acrid taste.

GRAMINACEÆ.

Secale cereale. In addition to the protean bodies obtained by Ritthausen from *rye* (see J. P. Ch. xcix., pp. 439 and 454), this author has determined a peculiar gum, which is soluble in dilute alcohol and is described, together with the method pursued in its separation, in J. P. Ch. cii, 321. The fatty matter of rye contains *cholesterin* and *palmitic* acid. Rye appears to have the property of undergoing the butyric fermentation, the author having obtained that acid by allowing a mixture, consisting of rye meal, water and one-tenth per cent. of hydrate of potassa to ferment at ordinary summer temperature.

Ergota. Dr. E. R. Squibb and Mr. T. S. Wiegand agree that ergot should never be kept on hand in the form of powder, but should always be bruised finely as wanted; a sieve of 45 meshes to the inch appears to be fine enough; to pass it through a finer sieve (say 60 meshes to the inch), requires the ergot to be extra dry, which will in most cases injure its quality. Proceedings 1867, 64.

Berlandt objects to the recognition of ergot in flour by the odor evolved from the action of caustic potassa upon it. He

recommends the decomposition of the propylamine of the ergot into marsh gas and hydrocyanic acid as perfectly accurate, and suggests a process for this purpose. Archiv. Ph. 1868, 382. A. J. Ph. xl, 313.

Zea mays. H. Alleman has examined the oil obtained from Indian corn in the preparation of alcohol, and gives it the following characters: it is of a red-yellow color, preserves the odor and consistence of olive oil and a sweet taste. It is not readily altered when exposed to the atmosphere, and does not solidify very easily in the cold. It appears to be composed of olein, stearin and palmitin. Ch. C. B. Dec. 11, 1867.

Saccharum officinarum. In various Spanish provinces — chiefly Malaga, Granada and Almeira — the sugar cane is now cultivated extensively and with marked success, the cane growing as large as in the tropics. 9,000 tons of sugar was produced in 1864. Arch. f. Ph. March, 1868, 271.

A native sugar cane grows abundantly and luxuriantly on the banks of the Humboldt river, Nevada. The Indian squaws collect the little sugar balls which are formed along the stalks, and it is said that this sugar is superior to sorghum, as it granulated readily. It is confidently asserted that it will grow on any of the lowlands in the United States. A. D. Cir. xii, 125.

PALMACEÆ.

Copernica cerifera. The fan-like leaves of this palm, abounding in Brazil, are covered on both sides with a pollen-like powder, which is extensively collected, and when melted furnishes a remarkably solid wax. Martius states that the trunk will yield an abundance of sago-like medullary matter; the fibres of the leaves are employed for making ropes and brooms, and the root, consisting of a sharp, bitter cortical and a tough ligneous portion, is employed by the Brazilians as a substitute for sarsaparilla. N. Rep. Ph. xvii, 248.

ARACEÆ.

Caladium esculentum, the *taro* of the natives, is cultivated extensively in Polynesia for its tubers, which are used as food

when roasted. After partly fermenting the tubers, a kind of bread is prepared from them, and constitutes a very popular dietetic under the name of *poi*. N. Jahr. Ph. 1867, 281.

Tacca pinnatifida (Forst.). The tubers of this plant are used in Tahiti to prepare an *arrow root*. After the leaves are decayed, the tubers are taken up, thoroughly washed, mashed in a large bowl by means of a piece of coral, and passed through a sieve of cocoanut fibres by allowing water to flow through it; after several washings it is dried. Ibid. 279.

FILICES.

Adiantum excisum. By the name of culantrillo a number of species of Adiantum are used in Chilian pharmacy. The whole plant is employed, generally mixed with honey, as a pectoral and emenagogue. v. Schroff, in N. Rep. Ph. xvi, 710.

Pellæa andromedæfolia (Fée.). This tender fern is indigenous throughout Chili, and particularly abundant in Coquimbo and San Fernando. It appears to be employed in Chilian pharmacy, but there is nothing stated as to its specific virtues. Ibid.

LYCOPODIACEÆ.

Lycopodium. Potyka has observed a lot of 6 to 7 cwt. of a sulphur-yellow powder, which was offered in the European markets as lycopodium, but was found to consist entirely of the pollen of *Pinus sylvestris*. It came from Galicia, and is readily distinguished from true lycopodium by its darker color and by mixing readily with water. N. Jahr. Ph. xxviii, 94.

ALGÆ.

Laminaria digitata. Mr. Stanford exhibited some specimens of charcoal obtained by the carbonization of taugle, which he states has a composition very closely corresponding to that of animal charcoal. It is remarkable from being thrice the size of the original taugle, forming a very porous charcoal, which, by experiment, was found to discolorize 25 p. c. more of solution of caramel than animal charcoal would under the same conditions. Proc. Br. Ph. Conf. 1867, 40. Ph. J. Trans. ix. 186.

ANIMAL DRUGS.

INSECTA.

Apis mellifica. Honey. According to Mr. Colby, West India honey (Cuban), as imported, is never adulterated; domestic honey is occasionally adulterated with starch, but most frequently with cane sugar in the form of syrup. It is customary to flavor adulterated honey with peppermint. Proceedings, 1867.

Beeswax. Mr. J. F. Babcock presented an essay on this subject at the last meeting of the Association, which embodies its commercial and chemical history, process of bleeching, adulteration, &c. Proceedings 1867, 372.

Coccus carica. The wax of the fig-cochineal contains, according to Targioni Tozzetti, half its weight of ceroline, and can be abundantly procured for use in the arts. Ch. N. Aug. 16, 1867.

Ennomos subsignaria. Mr. Allen Shryock has made the measuring worm the subject of an essay, in which its physical and chemical characters, and medical properties are considered. The author found it to contain a crystalline principle, volatile oil, fixed oil, green and black (?) coloring matters and traces of tannic acid. In large doses it has an emetic effect; in much smaller ones it acts slightly narcotic, diuretic and antispasmotic. He suggests that it may prove a useful agent in the treatment of diseases of the urinary organs and nervous derangements. A. J. Ph. xl, 305.

PISCES.

Gadus morrhua. Cod Liver Oil. A paper on "*Lofoden cod liver oil,*" by Mr. R. Houdon, will be read with interest, in Ph. J. Trans. ix, 312. The following are the principal points of interest.

1. Genuine Lofoden oil is true cod liver oil, made from Gadus morrhua.

2. The light yellow oil is not inferior to the brown oil.

3. Oil sold at Bergen is not necessarily Lofoden oil, or even pure cod liver oil, although so called.

4. The relative absence of color, odor and taste are guaran-

tees that the process of separation was conducted at low temperatures.

5. The annual supply of new cod liver oil from Norway, may be expected in the European markets in July.

A. J. Ph. xl.

In connection with his report on the Boston Drug Market, Mr. Colcord stated that the article mentioned as medicinal (cod liver) oil—was a mixture of cod liver and olive oil. Proceedings 1867, p. 40.

MISCELLANEOUS DRUGS.

Spurious Gum. A peculiar gum, imported from India, and occasionally employed as an adulterant to gum arabic, has found its way into the French markets, and is characterized by MM. Lebœuf and Dumeril, by the following properties. It is less transparent, its surface not so much fissured as gum arabic and it is frequently found in warty masses. With 3 parts of water it forms a thick, translucent, cohesive magma, which, when mixed with an excess of water, will not loose a certain ropiness. As gum arabic is perfectly soluble in 3 p. of water, this serves as a good distinguishing test. J. de Chim. Med. N. Rep. Ph. xvi, 53.

Black Wax from Madras, imported into Ireland in 1862, has been the subject of experiment by Mr. W. J. Smith. It consists of two distinct layers, one black, the other brown. Its sp. gr. is 0·985; it melts at 148°F. and consists of 15·054 p. c. of ceroline, 63·602 cerotic acid, 17·088 coloring matter insoluble in ether and 4·253 do. soluble in ether. Ch. N. May 22, 1868.

Alkaloids. The tonic action of strychnia, brucia, thebaine and codeia are, according to the experiments of Drs. Brown and Frazer, greatly diminished by the addition of *iodide of methyl*, by which new bodies are formed, which, instead of being strongly convulsent, possesses on the contrary the physiological action of *curare*. The tonic action of morphia is also much diminished by the iodide; its convulsive action is totally destroyed, but its specific action remains. Ch. N. Mar. 13, 1868.

Carbolate of Quinia is used by G. Braun with advantage in puerperal diseases, and by Duchek in several typhus cases and

one of pyæmia. It was administered in the form of pills, and it is found that carbolic acid, combined with quinia, can be given in much larger relative doses than when administered in its isolated form. A. J. Med. Sc., cxi, 261.

Carbolic Acid in form of solution is highly recommended by Dr. Squibb as an application to burns and scalds. In his own case he found immediate relief upon its application.

Dr. F. Crace Calvert recommends the administration of either olive or almond oil, mixed with a little castor oil, after the use of the stomach pump in case of poisoning by carbolic acid.

Prof. Pierie recommends 1 p. of carbolic acid mixed with 6 p. olive oil as an application to burns. It should be applied with lint and the bandage covered with tin foil. Cures have been effected by its application when ordinary treatment would have proven fatal. A. D. Cir. xii, 60.

Picric Acid and its salts have proven very efficacious in the treatment of intermittent fevers, where quinia had lost its effect by continuous use. A. D. Cir. xii, 60.

Paraffine. By the experiments of Mr. Babcock, it appears that this substance can be used as a substitute for beeswax to a much greater extent than has been supposed. When melted with oils it forms crystalline scales on cooling; but this property is entirely destroyed by the addition of 5 to 10 per cent. of wax, which causes the mixture to cool into a homogeneous mass. Proceedings 1867, 374.

Iodoform has been used with decided benefit in the treatment of cancer of the uterus, in the form of a suppository with cacao butter. It has also been employed beneficially in diseases of the bladder. A. J. Med. Sc. cx, 526.

Collodium is strongly advocated by Latour as an application to the bites of insects, as he has found it essentially servicable. A. J. Med. Sc. cx, 537.

Hydride of Methyl. The fire damp or marsh gas, which so frequently is the cause of accidents in mines, has been examined by Dr. Richardson in order to determine its physiological action. He finds that it can be inhaled in considerable proportions, when

mixed with air; in fact in such quantities that he inclines to the belief that death is only produced when it is inhaled in a nearly pure state, as would probably be the case when explosions occur in mines. He considers it probable that, when miners are simply entrapped by it, it is mixed with carbonic acid to such an extent as to form a fatal mixture. As a means of recovery of those under its influence, he recommends exposure to heated air and administration of warm nourishing drink. Alcoholics are regarded as decidedly objectionable. Proc. Brit. Assoc. Dent. Cosmos. ix, 272.

Bichloride of Methylene, which is formed from chloroform by the action of nascent hydrogen, produced by the action of sulphuric acid on zinc suspended in it, differs from chloroform by the replacement of one eq. Cl by one of H. It promises, according to Dr. Richardson, to become a most valuable anæsthetic, being most gentle and perfect in its action, and causing the animal under its influeuce to lapse into the third stage, with but a slight exhibition of the stage of excitement. The insensibility is deep and well sustained, and the recovery quiet and good. Ibid, 274.

Tetrachloride of Carbon is stated, by Dr. Richardson, to be a more dangerous anæsthetic than chloroform. In its action it presents the same four stages, but the second stage is more prolonged and intensified. Its boiling point, being considerably higher than that of chloroform, it is eliminated more slowly, and saturating the nervous centres, it kills more quickly and determinately. Ibid. 273.

Amber. A mine of amber has been discovered in Grassy Gully, near Rockwood, Australia. The amber is found in great abundance, and corresponds in all respects with the brown amber of Europe. Ph. J. Trans. ix, 396.

Succinate of Peroxide of Iron is recommended, by Dr. Buckler, for the treatment of leucophlegmatic subjects in whom there is a tendency to a redundance of fatty tissue, and when there is reason to suppose that cholesteric fat may be forming about the heart and arteries. He has also used it with advantage to prevent formation of cholesterine, and to render that already formed in the gall bladder more susceptible to the action of chloroform. A. J. Med. Sc. cvii, 51.

Cyanide of Potassium. In the gilding department of the American Watch Works finely powdered protosulphate of iron, rubbed up with raw linseed oil, is used as the most effectual remedy for external poisoning by this virulent agent. A. J. Ph. xl, 82.

Charcoal. The use of charcoal as a hæmostatic is highly recommended by Dr. Murray Weidman, who regards it as less irritating than most other remedies, and has found it to arrest bleeding at the nose when persulphate of iron has failed. Dent. Cos. ix, 276.

Graphite. A very productive mine of graphite is now successfully worked in California. It is situated on the west side of Tennessee Gulch, near Sonora, Tuolmune county. About 1,000 tons of graphite are produced per month, and the mine is worked with comparatively moderate expense. Ch. N. May 1, 1868. A. J. Ph. xl, 355.

Peroxide of Hydrogen. Dr. John Day reports a case of diabetes that had resisted all ordinary treatment for three years, and is now rapidly yielding under the influence of an ethereal solution of peroxide of hydrogen. A. J. Med. Sc. cx, 535.

Chlorine. Sulphuretted hydrogen is, according to the authority of Prof. Maisch, a direct antidote to the poisonous effects of the inhalation of chlorine. Dent. Cos. ix, 221.

Bromide of Potassium. M. M. Eulenberg and Guttman have stated, before the Paris Academy of Sciences, that rabbits are killed by this salt by doses of 30 to 60 grs., in from ten to thirty minutes, and that the poisonous effects are not attributable to the bromine, but to the potassium (?). Lond. Lancet. Aug., 1867.

Dr. Beauford advocates the use of this salt in whooping-cough. It acts by reducing the disease to a simple catarrh, which is subsequently most efficiently treated with aconite and bals. tolu. A. J. Med. Sc. cx, 536.

Sulphur. Dr. Laugantiers employs sulphur with advantage in the treatment of croup. A mixture of a teaspoonful in a glass of water is administered in teaspoonful doses every hour. A. D. Cir xi, 261.

The annual production of sulphur in Italy amounts to about 300,000 tons, the greater proportion being produced in Sicily. For the past fourteen years the separation of the sulphur from the accompanying lime has been greatly improved. Formerly the separation was effected in small kilns; it is now done in heaps, which are covered with earth in a similar manner adopted in charcoal burning, by which there is a great economy in sulphur, and the danger formerly attending the process entirely avoided. The Romagna has, since 1862, also contributed largely to the supplies of sulphur. A. J. Ph. xl, 68.

Sulphites and *Hyposulphites* are used and recommended, by Prof. Polli, of Milan, in the treatment of zymotic diseases. He says they do not act as poisons toward the several morbific ferments, which we have supposed to be the cause of the zymotic diseases; but they react upon the material components of our own organism, rendering it, by their presence, incapable of being acted upon by the catalytic germ. Br. Med. Jour. A. D. Cir. xii, 60.

Bisulphite of Lime is highly recommended, by Mr. W. L. Scott, as an antiseptic for a large number of pharmaceutical preparations, anatomical subjects and animal substances of various kinds; also as a general disinfectant and antiseptic. Proc. Br. Ph. Conf., 1867. Ph. J. Trans. ix, 189.

Phosphorus has been used with the best results in the treatment of paralysis, by M. Dalpech. A. J. Med. Sc. cx, 536.

Fluoride of Ammonium, in solution, is used successfully for etching or writing on glass with an ordinary quill. It leaves distinctly the characters traced. A. D. Cir. xii, 60.

Sylvin (KCl), which has been observed in the salt mines of Stassfurt, has also been found in the mines of Kalusz (Galicia). Tchermack states that it occurs in the clay deposits mixed with small quantities of rock-salt and gypsum, forming bluish and yellowish-red layers. Wien. Ak. Ber. 1868, iii.

Cryolite. M. Hagemann has discovered two new minerals accompanying cryolite, which have been named respectively *dimetric pachnolite* and *arksutide.* They occur at Arksut Fiord,

in South Greenland, and contain, besides the constituents of cryolite, calcium. Ch. N., Jan. 3, 1868.

Mr. E. T. Ellis, in a paper presented at the last meeting of the Association, draws attention to the importance this mineral is gaining in the manufacture of soda, alum, &c. One hundred pounds of cryolite yield 44 lbs. dry caustic soda, or 75 lbs. dry carbonate of soda, or 203 lbs. of cryst. carb. soda, or 119½ lbs. bicarb. soda; and as residue 24 lbs. alumina. Proceedings 1867. A. J. Ph. xl, 71.

Mr. S. F. Simes gives also some statistics on cryolite and its technical application in A. J. Ph. xl, 193.

Terra alba, used largely for the adulteration of cream of tartar, is, according to Dr. Squibb, prepared in England from sulphate of lime. Proceedings 1867, p. 43.

Mr. Markoe states that the above term appears to be applied to a number of substances; he had observed that white clay and nicely prepared chalk were sold by the same name. Ibid.

Permanganate of Potassa is used with advantage by Dr. C. M. Fenn, for the treatment of acute rheumatism, in half grain doses. Dr. F's theory of its action is, that as an oxidizing agent in the blood, it transforms lactic acid into carbonic acid. A. D. Cir. xi, 275.

Mercury Ore. Mr. E. S. Wayne has analyzed a specimen of talcous rock, from Macon county, Tenn., which he states contains 7½ p. c. of mercury in the metallic state. There is said to be an immense vein of the material. Proc. 1867. A. J. Ph. xl, 76.

White Precipitate. Mr. J. B. Barnes draws attention to the adulteration of white precipitate with chalk. While most of the samples examined by him were pure, one sample contained 94 p. c. of chalk (?). Proc. Br. Ph. Conf. 1867, p. 10. Ph. J. Trans. ix, 157.

Bismuth. Mr. Tufts states that the high price of bismuth is chiefly owing to the failure of one of the principal mines, and also to its large consumption in the finer qualities of type. Proceedings 1867, p. 42.

Arsenic exerts, according to the experience of MM. Mout-

ard and Martin, a very positive action in pulmonary phthisis. It is more efficacious in the torpid form than that which is accompanied by fever; but rapid phthisis and the acute granular form undergo no modification by its use. The quantity taken daily need not exceed 2 centigrm. A. J. Med. Sc. cx, 535.

Arsenious Acid is used and recommended by Dr. Lisle in the treatment of cerebral congestion and hallucination, for which he considers it a specific. Of 193 cases of hallucination treated by him, 67 per cent. were cured. It is administered in doses of 5 to 16 milligrms. 3 times daily. Br. Med. Journ. A. D. Cir. xii, 60.

Phosphide of Zinc. The therapeutic employment of phosphides has hitherto been very objectionable on account of the readiness with which they decompose. In phosphide of zinc M. Curie has found an agent which is not liable to these objections, offering all the conditions of an excellent medicament. It is a gray crystalline substance, perfectly definite, unalterable in moist atmosphere, but readily decomposed by the juices of the stomach. Ch. N. July 3, 1868.

INORGANIC CHEMISTRY.

OXYGEN.

Bœttger recommends finely powdered permanganate of potassa for the production of chemically pure oxygen. The oxygen is obtained by heating the salt moderately in a small retort, and although but 10 per cent. of oxygen is obtained, the material is comparatively cheap, as it can be readily re-converted into permanganate. Oxygen thus obtained does not contain a trace of chlorine or ozone. J. P. Ch. ciii, 316.

Boussingault's process for preparing oxygen, by passing a current of air over baryta heated to dull redness, in porcelain tubes, and subsequently heating to bright redness, to expel the oxygen from the binoxide of barium formed, has been improved upon by M. Gondolo, and applied on a large scale. Baryta, contain-

ing a mixture of lime and magnesia, is treated in the same manner as by Boussingault, in large wrought or cast-iron tubes, which are coated with magnesia on the inner, and asbestos on the outer surface. The admixture of lime and magnesia prevents fritting of the material. A. D. Cir. xii, 156.

Ozone. Dr. Huizinga has instituted a series of experiments with a view to testing the reliability of the various reagents proposed for the detection of ozone in the atmosphere. The most important of these are resin of guaiac, iodide of potassium, moist silver, sulphate of manganese, sulphide of lead, indigo and protoxide of thallium. The author has found none of these reliable, and concludes *that a reliable method of ozonometry has not yet been discovered.* J. P. Ch. cii, 193–204.

Schœnbein finds that ordinary oxygen is without any action upon protoxide of thallium; but that ozonized oxygen combines rapidly, forming the brown peroxide. Paper, steeped into solution of protoxide of thallium, would be an excellent test for the presence of ozone in atmospheric air, if the absorption of carbonic acid by the oxide did not impair its delicacy. Ch. N. Aug. 16, 1867.

The presence of ozone in atmospheric air has been concluded, by Schœnbein, by its power of coloring iodide of potassium paper. The correctness of this conclusion having lately been questioned, Dr. Thos. Andrews instituted a series of experiments by which he proves Schœnbein to be correct. The author found that, when atmospheric air (which by experiment he found had the property of oxidizing mercury and coloring iodide of potassium paper,) was passed through a tube containing peroxide of manganese, or heated to 237° C., it lost its power of oxidizing the mercury or coloring iodide of potassium, a power possessed by ozone in a marked degree. By the above treatment of air, ozone is removed, while ordinary oxygen remains intact. A. D. Cir. xii, 68.

L. L. Soret satisfactorily proves that the density of ozone is one-half greater than that of ordinary oxygen, thus substantiating his statements in a previous paper. Compt. rend. lxiv, 904. Ann. Ch. Ph. suppl. vol. v, 148.

HYDROGEN.

Hydrogen is produced on a large scale by M. Giffard, by decomposing steam by incandescent coke. This is effected in a rather complicated furnace arrangement, described in Ch. N., Oct. 25, 1867.

Water. Wankelyn shows that the process usually pursued for the determination of organic matter in water—by evaporation and elementary analysis of the residue—gives incorrect results, as most of the organic matter is thereby volatilized. The deleterious constituents of water contain *nitrogen*, which on evaporation is driven off in the form of ammonia. The author proposes that more correct results would be arrived at by determining the amount of ammonia produced during the distillation of a given volume of water. N. Jahr. Ph. 1867, 157.

Bœttger has found *all* distilled water to be contaminated with carbonate of ammonia, which may be removed by redistillation after the addition of a few drops of sulphuric acid. He attributes to the presence of this carbonate the property of distilled water to attack chem. pure lead foil, which is not affected when the water has been redistilled from sulphuric acid. J. p. Ch. ci, 296.

NITROGEN.

Nitrous Acid. When weak solutions of the compounds of nitrous acid contain organic matter, the results obtained by titration with permanganate of potassa are generally inaccurate. Kubel therefore proposes that the permanganate be added in excess to the neutral nitrous solution, followed by the addition of dilute sulphuric acid in considerable excess. The excess of permanganate is titrated by volumetric solution of iron until the solution becomes discolored, and is then again treated with volumetric solution of permanganate until it becomes faintly reddened. The difference between the amount of solution of permanganate indicated by the volumetric solution of iron, and the amount actually employed, affords very accurate data, from which the amount of nitrous acid is readily calculated. J. p. Ph. cii, 229.

SULPHUR.

Sulphides. Shöne has instituted a series of experiments with

reference to verifying the results obtained by Berzelius on the sulphides of the alkaline metals; the author has experimented by the dry and wet process, and his results differ in many respects from those obtained by Berzelius. Ch. C. B. Dec. 7, 1868.

Our text books generally state that the alkaline sulphides do not precipitate the salts of lime and magnesia; according to the experiments of Pelouze, this is only true of the sulphides of ammonium, sulphide of sodium producing distinct precipitates in very dilute solutions of lime and magnesia. Viert. Jahr. Ph. xvi, 434.

Sulphurous Acid is obtained profitably by F. Stolba, by heating anhydrous sulphate of iron with 2 eq. of sulphur. The residue consists of sulphide of iron, and finds ready application. From roasted sulphate of copper the SO_2 is produced still more readily.

Sulphuric Acid. Mr. James Mactear presented a valuable paper to the Glasgow Philosoph. Soc., in which the respective advantages and disadvantages of the use of Sicilian sulphur and pyrites are considered. The author alludes to many disadvantages resulting in the use of pyrites, which require greater chamber space, much more costly arrangement for burning, a larger percentage of nitre, produce an inferior acid and involve more labor than when sulphur is used. The occurence and chemical composition of pyrites from various scources, as Spanish, Norwegian, Swedish, Belgian, Westphalian, Italian, Irish, Cornish and Cleveland pyrites, are considered in detail. See Ch. N. May 8, 1868.

Chas. R. A. Wright gives the following as sources of loss of sulphur in the manufacture of sulphuric acid.

1. Loss of SO_2 by leakage from burners, pipes, chambers, &c.
2. Incomplete combustion of sulphur.
3. Non-conversion of SO_2 into SO_3HO, and consequent loss of SO_2 by its passage as such into the chimney.

Some practical hints are given relative to the prevention of loss from these causes. Ch. N. Aug. 23, 1867.

CHLORINE.

Hypochlorites. Chlorinated lime. Wright gives the following as sources of waste in the manufacture of bleaching powder:

1. Incomplete decomposition of all the MnO_2.

2. Loss of chlorine by leakage from the generators, conducting pipes and powder chambers, and non-absorption of some chlorine supplied, by the slacked lime.

3. Deterioration of the powder made; either by loss of hypochlorous acid from the action of atmospheric CO_2, or by conversion of hypochlorite into chlorate and chloride, or other compounds deficient in bleaching power.

The total average loss in a number of operations was 25 p. c. The author gives some practical hints with a view to obviate these losses in a measure. Ch. N. Sep. 6, 1867, p. 126.

Hypochlorite of Soda is most advantageously prepared by substituting bicarbonate for carbonate of soda; a crystalline precipetate of carbonate of lime takes place, which settles more rapidly than the magma usually formed. Moreover a slight excess of bicarbonate of soda has been found advantageous, and the solution is devoid of the caustic character communicated by an excess of carbonate. Ch. N. A. D. Cir. xi, 275.

Chloric Acid. C. Stelling proposes its determination as chlorine by the addition of protosulphate of iron and excess of hydrate of potassa; the mixture is boiled, filtered and the chlorine determined in the usual manner. Ch. N. July 12, 1867.

BROMINE.

Surgeon J. H. Bill recommends chloride of gold as a test for the presence of bromine; the presence of iodides, however, interferes, and they are therefore to be separated, first by palladium, and the palladium by sulphhydric acid; upon concentrating the solution it is ready for the test. Select two test tubes of the same size, shape and color of glass; pour into one the suspected solution, and into the other the same volume of pure water, to which a trace of chloride of potassium is added. On adding to each a drop of chlorhydric acid, followed by a drop of solution of gold, a yellow coloration will result in the tube containing the

suspected liquid, if it contains bromine, and this is made more manifest by comparing it with the other tube. A decided yellow color is produced by $\frac{1}{333}$ centigrm. in 30 cc. of water. A. J. Ph. xl, 272.

Phipson recommends bisulphide of carbon as a reagent for the detection of Br in the presence of I. The test depends upon the fact that when the bromide and iodide are decomposed by chlorine in the presence of bisulphide of carbon, this liquid dissolves the colorless pentachloride of iodine formed, while the bromine communicates an orange color to the bisulphide.

Bromides. Bodecker recommends that bromide of calcium be first prepared, from which all the other bromides are readily made by double decomposition. The author first prepares bromide of sulphur by simple admixture of 20 p. sulphur, with 240 p. of bromine in a flask. To this he adds gradually milk of lime, obtained from 140 p. *pure caustic lime.* The filtered solution is treated with carbonic acid, and heated for a short time to separate the caustic lime dissolved; it is then concentrated and mixed with alcohol to separate the sulphate of lime formed. The filtered solution yields pure bromide of calcium, from which the salts of the alkalies may be obtained pure by accurate precipitation of the calcium salt with their carbonates. N. Jahr. Ph. xxviii, 217.

IODINE.

Hydriodic Acid. Prof. Winkler avoids the loss of iodine in the preparation of this acid, by dissolving the I in bisulphide of carbon, covering this solution with a sufficient amount of water to form an acid of the desired strength; sulphuretted hydrogen is then passed to the bottom of the vessel until the solution becomes decolorized, when the aqueous acid may be separated from the oily solution of sulphur by means of a moistened filter. The excess of HS is driven off by applying gentle heat to the acid solution for a short time, which is then chemically pure. The bisulphide of carbon is separated from the sulphur by simple distillation and is then again fit for any purpose. A. D. Cir. xii, 70.

T. Hautefeuille states that hydriodic acid when heated to 180°

C. is decomposed, giving off violet fumes, which increase slowly to 440°C; but from 440° to 700°C. the decomposition increases rapidly. At a given temperature the decomposition is increased in the presence of spongy platinum; but the latter also causes H and I to combine. Compt. rend. lxiv, 608. Ch. N. July 5, 1867.

FLUORINE.

Fluorine. M. Prat avers that he has isolated fluorine by heating fluoride of lead, either with nitrate of potossa or binoxide of manganese by which a mixture of oxygen and fluorine is formed. The oxygen is separated by passing the mixture over heated BaO, with which the O combines to form BaO_2, leaving the fluorine in the form of a colorless gas, having an odor resembling that of chlorine. It decolorizes indigo; reddens litmus; fumes in contact with air; forms dense fumes in contact with ammonia; decomposes water as well as chlorhydric acid; unites with H in diffused day-light, forming HFl; and combines with all metals, platinum and gold perhaps excepted. A. D. Cir. xii, 7.

Fluorides. In continuation of his experiments, the same author states that chemists have hitherto been mistaken as to the composition of fluorides and fluorine. He regards the fluorides as in reality oxy-fluorides, and its equivalent is therefore much higher than is usually supposed. He represents fluoride of calcium as follows:

$$2\ Ca = 40,\ O = 8,\ \text{and}\ Fl = 29{\cdot}6 = 77{\cdot}6.$$

Chem. News, 1868.

Fluosilicates. Fluosilicate of Barium is obtained by F. Stolba, free from sulphate of baryta, by first treating the fluosilisic acid with a little baryta and filtering the acid, when it will yield the fluosilicate pure on treating it with pure hydrate of baryta. When obtained by boiling with dilute acid it is in the form of microscopic crystals which assume a stellate form. Its density is at 21°C, 4·2772; soluble in 3262 p. water at 21°C, or ⅓ that quantity at a boiling temperature. It is more soluble in acids and some saline solutions. Ch. N. Oct. 1867.

Fluo-manganous Acid, a new compound discovered by Nicklès,

is prepared by adding hydrofluoric acid to an ethereal solution of perchloride of manganese. Its reactions are similar to those of the perchlorides; it forms unstable compounds with bases. Ch. N. Jan. 3, 1868.

PHOSPHORUS.

Phosphorus. The fact that copper salts, even when in very dilute solutions, impart a more or less deep black coloration to phosphorus, has prompted Blondlot to determine whether this was applicable as a test for copper, (see copper in this report). Solutions of Fe, Zn, Ni, Co, As, Sb, Bi, and Pb are not changed by phosphorus; but it has the power of changing solutions of Hg, Ag, Au, and Pt. Viert. Jahr. Ph. xvi, 423.

Phosphoric Acid. The volumetric estimation of this acid, which is now frequently resorted to in the estimation of the superphosphates, and as usually performed by means of nitrate of uranium, requires some precautions to insure satisfactory results, is commented upon by Mr. C. F. Burnard, who also refers to a process devised by him, which has afforded satisfactory results, although not in all cases applicable. Ch. N. Feb. 28, 1868.

Pyrophosphoric Amides. Pyrophosph-amic Acid, which hitherto had been formed only by the breaking down of the higher amides, Dr. J. H. Gladstone inclines to believe can be prepared synthetically. When a pyrophosphate of an earth or metal is prepared in the presence of ammoniacal salts, the precipitate, when heated *per se*, gives off ammonia, and a peculiar sublimate, which is supposed to be characteristic of a pyrophosphamate. Ch. N. Nov. 29, 1867.

Pyrophosphotriamic Acid. The method formerly given by Dr. Gladstone for preparing this body was not a productive one. The following is far more productive and better:—Saturate oxychloride of phosphorus with dry ammonia gas, without regard to temperature; heat the resulting mass to about 200°C; add water to it and boil for about a minute, when the whole of the insoluble portion will be converted into the triamic acid, without loss. Ibid.

Phosphorous Acid. Rammelsberg has investigated the com-

pounds formed by this acid with bases, with special reference to their water of combination and of crystallization. The salts of Zn, Co, Mn, Cd, Pb, Cu, Fe_2O_3 and of the alkalies, contain 1 eq. of water chemically combined, while those of Ba, Sr, Ca, Mg and Ni, contain 2 eq. The water thus combined cannot again be eliminated as such, as by high temperatures the salts are decomposed without liberation of water. The amount of water of crystallization, contained in these salts, is likewise given. Ch. C. B. July 3, 1867.

Bromo-phosphorous Acid. O. Ordinaire has obtained deliquescent crystalline needles by heating 1 molecule of phosphorous acid and 2 molecules of bromine in a sealed tube, at the temperature of a water bath, until pressure was no longer observable. These the author regards as mono-bromo-phosphorous acid, as he has obtained, by analysis, figures corresponding with the composition of such an acid. Compt. rend. Ch. C. B. Dec. 28, 1867.

SILICIUM.

Analysis of Silicates. Silicates in which the alkaline metals are to be determined, and are not decomposed by acids, may be brought into solution by the combined action of fluoride of ammonium and sulphuric acid. The finely powdered mineral is mixed with 3 to 4 times its weight of the fluoride, moistened with sulphuric acid, the whole gently heated on a water bath, and finally over a lamp, to expel the excess of sulphuric acid. The dry residue is dissolved in chlorhydric acid and proceeded with as usual. R. Hofmann, in Zeit. Analyt. Ch. Ch. News. Feb. 23, 1868.

Oxychloride of Silicium (Si_2OCl_6). MM. Friedel and Ladenburg have obtained a compound corresponding to the above formula, by passing chloride of silicium through an empty porcelain tube, or one filled with fragments of felspar, heated to a temperature approaching the point of fusion of this mineral, condensing the product and repeating the process several times. It boils between 136° and 139° C. Ch. N. April 10, 1868.

CARBON.

Charcoal. W. Holmes notes a case of spontaneous ignition of finely powdered wood charcoal. Ch. N. Nov. 1, 1867.

Animal Charcoal. Dr. Wallace, in a paper presented to the Glasgow Philosophical Society, gives some valuable information on the properties, uses, waste, etc., of animal charcoal, and the restoration of spent charcoal used in sugar refining. Ch. N. May 22, 1868.

Hydrate of Bisulphide of Carbon. E. Duchaux has found that when bisulphide of carbon is allowed to evaporate spontaneously on a thermometer bulb enveloped in fine cambric, snow-like crystals are formed when the thermometer is reduced to 0° C. These, on analysis, proved to be a hydrate of bisulphide of carbon = CS_2 HO. They melt at a slight elevation of temperature. J. P. Ch. cii, 183.

Carboxylic Sulphide (COS). Than has recently succeeded in forming this compound and determining its properties. It is formed by the action of sulphuric acid upon sulphocyanide of potassium; it is evolved along with bisulphide of carbon, hydrocyanic and probably formic acid, from which it is freed by appropriate means and collected over mercury. It is a colorless gas, possessing an odor reminding of CO_2 and HS, but not unpleasant; soluble in its own volume of water, sweet to the taste, twice as heavy as air, and decomposed on standing a few hours, evolving the odor of HS. It is very inflammable, and with $1\frac{1}{2}$ volumes of oxygen, forms an explosive mixture. Ann. Ch. Ph. Suppl. vol. v, 236. Ch. N. June 5, 1868.

It appears to exist naturally in tolerable abundance, but owing to the readiness with which it is decomposed by water into CO_2 and HS, it has hitherto escaped detection. The author first succeeded in producing it by direct combination of sulphur vapor with CO. Ann. Ch. Ph. Sup. vol. v, 236.

Carbonic Oxychloride. Th. Wilm and G. Wischin prepare phosgene gas most conveniently by passing carbonic oxide and chlorine through separate tubes to the bottom of a flask, and allowing the mixed gases to pass through a single tube, successively through two more flasks, exposed to light. If the gases have entered the first flask in such proportion that the CO is in slight excess, the phosgene gas will pass through the last flask

entirely free from chlorine and with but a trace of carbonic oxide. Ch. N. July 3, 1868.

Carbonic Acid. M. Ozof, by the aid of a rather complicated apparatus, obtained pure carbonic acid from coke, which he recommends as preferable to the sources usually employed for the manufacture of mineral waters. Ch. N. May 15, 1868.

Carbonic Acid in Solution. Frezenius maintains that the cause of precipitates not forming immediately upon addition of ammoniacal solution of barium or calcium to mineral waters containing free carbonic acid, is owing to the formation of carbamate of ammonia, and not to the solubility of the precipitate in sal ammoniac, as stated by Carius. The carbamate changes but slowly into carbonate, at ordinary temperatures, but rapidly on application of heat. Ch. N. Jan. 3, 1868.

Carbonates. Dr. R. Wagner has experimented extensively on the solubility of carbonates of the earths and metals in carbonic acid water. His researches include the carbonates of baryta, copper, zinc, iron, manganese, lead and magnesia. (See the carbonates of these metals in this report.) J. P. Ch. cii, 233.

Chlorsulphoform. $C_4 Cl_2 S_6$. During the production of chloride of carbon, Hartley obtained, from the residue in the retort, a new compound of the above composition, and which he proposes to name *chlorsulphoform.* It forms yellowish needles, possesses a peculiar but pleasant taste; is sparingly soluble in alcohol and ether, but freely soluble in chloroform, the bisulphide and chloride of carbon, and in the liquid hydrocarbons. It begins to sublime below its melting point, which is not below 250° C. J. Ch. Soc. Ch. C. B. Dec. 18, 1867.

POTASSIUM.

Nitrate of Potassa. J. H. Iwindells has examined a number of residues from the manufacture of nitrate of potassa, and finds that there occurs a considerable waste of potassa by the process as usually conducted. Some suggestions are offered for avoiding this waste. Ch. N. Oct. 25, 1868.

SODIUM.

Chloride of Sodium. A. Stiersch determined that common

salt in solution, when allowed to remain in contact with zinc for some time, will act upon that metal. Oxide of zinc and a soluble compound of zinc and chloride of sodium is formed, and may be readily detected in the solution. This property of salt should be noted by manufacturers who employ galvanized iron vessels. Ch. C. B. Aug. 7, 1867.

Hydrate of Soda begins to crystallize, according to Etchene, when a hot, saturated solution is cooled to between 40° and 50° C. The crystals have the composition of NaO,5HO. They are very deliquescent, and, when thoroughly dried, do not fuse below 80° C. Ch. N. Aug. 23, 1867.

Phosphate of Soda. M. Jean has lately experimented with a view to simplify the present processes for preparing this salt from bone phosphate. He has attempted its preparation by fusing a mixture of tribasic phosphate of lime, sulphate of soda and carbon; on lixiviating the mixture a strongly sulphurous liquid was obtained, the residue consisting principally of oxysulphide of calcium. Unfortunately a large excess of sulphate of soda has to be employed (6 eq. to 1 of phosphate) to insure the complete separation of the PO_5 from the lime, by which the solution becomes so heavily charged with sulphide of sodium as to render the process for the present impracticable. Ch. News, May 22, 1868.

Fluoride of sodium has, however, been successfully prepared by the above process, substituting fluoride of calcium for the phosphate, and adding a portion of carbonate of lime, which prevented the formation of sulphides. The following are the proportions: Fluoride of calcium 100 p., carbonate of lime 140 p., sulphate of soda 200 p., and an excess of carbon. Ibid.

BARIUM.

Carbonate of Baryta, recently precipitated, is soluble in 132·3 p. of carbonic acid water, under a pressure of 4 to 6 atmospheres, according to the experiments of R. Wagner. These results differ widely from those of Lassaigne, who gives 588 p., and of Bineau, who gives 1267 p. of carbonic acid water, as necessary to dissolve 1 p. of the carbonate. J. p. Ch. cii, 233.

CALCIUM.

Chloride of Calcium. J. Hargreaves makes some practical remarks on the useful application of chlor. calcium obtained as a waste product, in Ch. N. Sep. 6, 1867.

Sulphide of Calcium cannot be obtained by precipitation, according to the experiments of Pelouze, (see sulphides in this report). As prepared by the decomposition of gypsum by fusion with charcoal, it is but sparingly soluble in water; but this solution is not simple, it being at the same time decomposed (as already stated by Rose) into lime and sulphhydrate of calcium. Viert. Jahr. Ph. xvi, 437.

Pure Carbonate of Lime is prepared by Gräger, by digesting a slight excess of slacked lime in solution of nitrate of ammonia, (by which nitrate of lime is formed and free ammonia remains in the solution), filtering off the clear liquid and passing in carbonic acid gas and subsequently adding a little carbonate of ammonia. Carbonate of lime is formed, and the ammonia again converted into nitrate, which finds application in a subsequent operation. N. Jahr. Ph. March, 1868.

Sulphate of Lime. Iron filings are said to have a tendency to harden plaster of Paris casts, all other substances having a tendency to weaken their firmness. When they are mixed with the plaster they rapidly oxidize, and the oxide formed adds its own strength to that of the plaster. Ch. N. Sp. 10, 1868.

MAGNESIUM.

Magnesium Alloys. J. Parkinson has succeeded in alloying this metal with sodium, tin, cadmium, bismuth, lead, zinc, antimony, copper, aluminium, mercury, silver, gold, and platinum. He was unable to alloy it with iron, cobalt and nickel. The great difficulty in forming alloys consists in its volatility at high temperature; this was overcome by conducting the experiments in a current of hydrogen, or under fluxes of fluor spar and common salt or cryolite. Considerable dexterity and practice is required to keep the magnesium below the surface of the flux. J. p. Ch. ci, 375.

Magnesium. Reichert prepares magnesium from white *car-*

nalite (double chloride of magnesium and potassium), by heating 10 p. of the finely pulverized mineral, and 1 p. finely pulverized fluor spar, with 1 p. of sodium. A. D. Cir. xii, 157.

Magnesia is separated from lime in the course of analysis, by Schwarz, by converting the bases into sulphates, evaporating the mixture to dryness, heating to redness, and, after weighing, extracting with a saturated solution of gypsum, by which the magnesia salt is dissolved, leaving the sulphate of lime. On drying, and again heating the residue to redness, the absolute weight of the lime salt is obtained and, by comparison, the relative quantities of the alkaline earths are readily determined. N. Jahr. Ph. xxviii, 309.

(Allowance must be made for the amount of gypsum from the saturated solution retained by the lime salt. C. L. D).

Sulphide of Magnesium, which, according to Berzelius, can be prepared by passing sulphhydric acid into magnesia suspended in water, filtering the solution formed and boiling to expel excess of HS, was not obtained by Pelouze by that process. He found that under these conditions sulphhydrate of magnesia was formed, which by boiling is decomposed into HS and MgO. Viert. Jahr. Ph. xvi, 439.

Carbonate of Magnesia. 1 part of carbonate of magnesia requires, according to G. Merkel, at 15°C, under the pressure of 1 atmosphere,

761 p. of carbonic acid water for solution.

2	atmospheres	744 p.	carbonic	acid	water.
3	"	134 p.	"	"	"
4	"	110·7 p.	"	"	"
5	"	110 p.	"	"	"
6	"	76 p.	"	"	"

See J. p. Ch. cii, 237.

Sulphite of Magnesia. J. P. Remington prepares sulphite of magnesia by rubbing 5 gram. of recalcined magnesia (Jennings) into a smooth paste with 10 cc. of distilled water, and adding to this 102 cc. of aqueous sulphurous acid of sp. gr. 1·037; the supernatant liquid is decanted after standing at rest a few minutes and the crystalline powder placed upon a filter, washed and

dried. The author obtained 3·06 times the quantity of the magnesia employed; the theoretical quantity of salt is 3·96. A. J. Ph. xl, 97.

Sulphate of Magnesia. By the experiments of Dr. Riekher on the process for preparing sulphate of magnesia from magnesite, as recommended by Dr. Mirus, (see Arch. Ph. cxxxvii, 193), it appears that this process is satisfactory as regards the technical description; but the author has found it too difficult to separate the iron from it. He recommends therefore the substitution of sulphide of barium for sulphide of calcium, which will precipitate the iron perfectly, and also lead and manganese if present, while a slight excess is of no consequence, as insoluble compounds only are formed. A perfectly pure salt may thus be obtained. N. Jahr. Ph. xxviii, 13.

CERIUM.

Cerium is separated from didymium and lanthanum, by MM. Patterson and J. Clarke, by taking advantage of the fact that chromate of cerium is decomposed when heated to about 230°, while the corresponding compound of Di and La remain unchanged at that temperature. A mixture of the oxides of these metals is dissolved in aqueous chromic acid (which need not be entirely free from SO_3) and after evaporation to dryness heated to the above temperature. On dissolving the mass left upon cooling, oxide of cerium remains in the form of a yellowish white powder, which is almost completely insoluble in acids, but when fused with bisulphate of potassa becomes soluble. Ch. N. Nov. 22, 1867.

Cerium has lately been separated by Wöhler from the double chloride of cerium and potassium, by means of sodium. A. D. Cir. xii, 157.

MANGANESE.

Manganese, in the form of MnO, is determined by Reichardt, in various admixtures with iron, as MnO_2, by the aid of hypochlorite of soda, as suggested by Wöhler. To the solution of the mixed oxides in HCl, a considerable excess of chloride of sodium is added, diluted, heated and neutralized with NaO or NaO CO_2, until a slight, permanent precipitate results, which is

then again dissolved by just sufficient HCl. On the addition of acetate of soda, $Fe_2 O_3$ is precipitated, if present. The filtrate is again heated and a small proportion of HCl added until it remains permanently clear; chlorate of potassa is now added, which converts FeO, if present, into $Fe_2 O_3$, and this is precipitated as before (with acetate of soda). To the filtrate, again heated to the boiling point and removed from the fire, hypochlorite of soda is now added, as long as a dark brown precipitate occurs, which consists of MnO_2. Viert. Jahr. Ph. xvi, 394.

Iodide of Manganese. Laster's method for preparing this salt consists in mixing solutions of 142 grms. iodide of calcium and 86 grms. sulphate of manganese, each dissolved in ½ a pint of boiling water; boiling for 10 minutes, filtering and evaporating to dryness; or by dissolving 87 grms. sulphate of manganese in 20 ounces of water, heated to the boiling point, adding gradually 220 grms. of iodide of lead, stirring after each addition, boiling subsequently for 15 minutes, filtering and evaporating to dryness. A. J. Ph. xl, 176.

Peroxide of Manganese. Welden recovers peroxide of manganese from the still liquors from the preparation of chlorine, by adding to the liquor in the still an equivalent of lime and injecting air through it. Chloride of calcium and protoxide of manganese are formed, which latter is rapidly oxidized into peroxide by the injected air. The peroxide thus produced, being in a finely divided state, is more economical and rapid in its action than native peroxide, and therefore yields the full theoretical amount of chlorine in a subsequent operation. It is obvious that, by this restitution, the same peroxide can be used over and over, with but slight waste. With a 55 p. c. oxide thus prepared the author obtained twice the yield of chlorine which a 70 p. c. native oxide would furnish. Ch. N. Sep. 6, 1867.

Permanganate of Potassa. Städeler recommends that the solution of manganate of potassa, obtained by the usual process for its production, be converted into permanganate by passing chlorine into the cold solution, until the green color is entirely removed. This procedure ensures a better yield than when the permanganate is produced by simply heating the dilute solu-

tion of manganate, by which ⅓ of the manganic acid is lost. J. p. Ch. ciii, 107.

Carbonate of Manganese is, according to R. Wagner, much less soluble in carbonic acid water than stated by Lassaigne, who gives 1 p. in 2,500 p. J. p. Ch. cii, 236.

Sulphate of Manganese. Laster prepares it by dissolving 40 p. of binoxide of manganese in 200 p. of chlorhydric acid (commercial), until chlorine is no longer evolved; mixing this with 53 p. of sulphuric acid, evaporating until acid vapors cease to be eliminated and the mass becomes dry. The dry mass is dissolved in 350 p. boiling water, treated with carbonate of manganese until it becomes rose-red, filtered, evaporated and crystallized. A. J. Ph. xl, 175.

IRON.

Iodide of Iron. According to Fresenius, this salt is not volatile. Zeit. Analyt. Ch. vi, 92. Ch. N. July 19, 1867.

Hydrated Sesquioxide of Iron. M. Jeannel believes to have found the cause of the frequent insolubility of this base. He ascribes it to the presence of sulphates, and concludes that this insolubility is always liable to occur when the oxide is thrown down from a persulphate, or a perchloride containing SO_3 as impurity. When it is precipitated, however, from a perchloride, which, as also the precipitant, is entirely free from SO_3, an oxide is obtained which will be found of constant solubility. It is remarkable that the oxide thus prepared is entirely soluble in officinal solution of perchloride of iron. A solution thus formed contains 1 eq. $Fe_2 Cl_3$ and 9 eq. $Fe_2 O_3$, and consequently holds 9 times more iron in solution than it originally contained. This solution of *ferri oxychlorid.*, the author suggests, may be advantageously used as a medicament. Ch. News, June 12, 1868.

Dr. Attfield does not agree with Jeannel, that the insolubility of hydrated sesquioxide of iron is owing to the presence of sulphates, and contends that a recently and properly prepared oxide is always perfectly soluble in acids. It is true, however, that an insoluble *oxysulphate* is sometimes formed, when the alkali is added to the ferric sulphate, instead of the latter to the former. Ch. N. June, 26, 1868.

P. L. Milleman proposes that the hydrated sesquioxide be preserved by means of glycerine, when kept on hand as an antidote for arsenic. The properly prepared oxide from 1 pint of solution of tersulphate is mixed with 4 fluidounces of pure glycerine and kept in a well-stopped bottle. When wanted for use it is brought to the measure of a pint and a half by adding sufficient water. Proceedings, 1867, 384.

Protocarbonate of Iron requires, according to R. Wagner, 1,380 p. of carbonic acid water for complete solution, under a pressure of 4 to 6 atmospheres. J. p. Ch. cii, 236.

COBALT.

Sulphides of Cobalt. Th. Fliorsdahl finds that when black oxide of cobalt is heated to redness, in a current of HS, it fuses and is converted into a yellow sulphide, having a strong metallic lustre and a composition of $Co_4 S_5$. Dehydrated sulphate of cobalt, when fused with sulphide of barium and chloride of sodium, forms a sulphide of composition CoS. This is crystalline, of a gray color and metallic lustre. Ch. N. Nov. 15, 1867.

NICKEL.

Nickel. According to a A. Strohmeyer, most of the nickel is now obtained from copper and iron ores. The *speiss* obtained in the making of smalt, which was its former source, is now very rare, owing to the increased manufacture of ultramarine in lieu of smalt. The processes now pursued for obtaining nickel have reached great perfection, and the author describes that pursued at Dillenberg, Nassau, where it is obtained from iron pyrites, containing capillary pyrites. (NiS.) Ch. N. Aug. 2, 1867.

CHROMIUM.

Sesquioxide of Chromium is obtained by Böttger in the form of an extremely voluminous powder, and perfectly pure, when 1 p. of picric acid and 2 p. of bichromate of ammonia are intimately mixed and ignited. The experiment is well adapted for lecture experiments, for which purpose it is well to place a large sheet of white paper under the capsule in which the combustion is conducted. J. p. Ch. ciii, 314.

ZINC.

Phosphides of Zinc. Zinc is, according to Regnault, capable of combining with phosphorus and forming regular compounds. The compound $Zn_3 P$ is obtained by heating 1 eq. of phosphate of magnesia with 2 eq. artificial sulphide of zinc and 7 eq. of carbon to a white heat; the new compound distils over, and may be collected in an earthen vessel. It is a lead-gray substance, may be obtained in the form of crystalline needles of sp. gr. 4·21 at 14° C.; melts at about the temperature at which glass softens, and is volatilized at near its own melting point. It is permanent in the air, and may therefore be advantageously used to prepare phosphuretted hydrogen, instead of the calcium compound usually employed. A compound $Zn_2 P$ has also been obtained by the author. Ch. C. B. Oct. 5, 1867.

Carbonate of Zinc. The recently precipitated carbonate of zinc is soluble in 188 p. of carbonic acid water, under a pressure of 4 to 6 atmospheres, according to the experiments of R. Wagner. Lassaigne's results differ considerably, giving 1428 p. carb. acid water to 1 p. of the carbonate. J. P. Ch. cii, 236.

Sodio-phosphate of Zinc is obtained, by Scheffer, by melting together 2 eq. of oxide of zinc and 1 eq. of microcosmic salt. The melted mass is elutriated with water and then dried. It forms a snow-white powder, which is but very sparingly soluble in water or acetic acid, but readily in dilute mineral acids. Its composition is $NaO, 2ZnO, PO_5$.

Basic Ammonio-phosphate of Zinc. Schweikert has analyzed this compound, obtained by mixing a solution of sulphate of zinc in ammonia and of phosphate of ammonia containing excess of alkali, and allowing the filtered solution to rest for a day, when a fine powdery precipitate forms, which, when thoroughly washed and dried, was found to have the composition $= 2NH_4O, 6ZnO, 3PO_5$. These results correspond with those of Heintz and Rother. Ann. Ch. Ph. cxlv, 57.

INDIUM.

Indium is obtained by Richter from zinc residues remaining after extraction of zinc blende with SO_3 and HCl, by treatment

with NO_5, evaporating the solution with SO_3, diluting and precipitating with HS. The precipitate, consisting of nearly all the indium, along with some Cd and Cu, is dissolved in HCl and precipitated by aqueous NH_3; by repeating this alternate solution and precipitation, the indium is obtained contaminated only with a little iron, from which it is obtained free by partial precipitation with NH_3 and $NaO\ CO_2$. The oxide of indium thus obtained is reduced in a current of hydrogen. Ch. N., Jan. 3, 1868.

Dr. Clemens Winkler has instituted extensive experiments upon this metal, and has published a paper in J. P. Ch. cii, 273–297, in which its sources, preparation and properties, its oxides and salts are fully considered. The author has obtained results which correspond with the generally accepted equivalent more nearly than the equivalent he has previously given (35·918), having obtained, as a mean of five experiments, 37·813.

COPPER.

Copper, when present in small amounts, is detected by the aid of phosphorus, according to the experiments of Blondlot, by introducing a stick of P into the suspected solution, to which an excess of SO_3 or NH_3 has been added. The phosphorus becomes coated with a coating of metallic or black phosphide of copper, and is then removed, washed and introduced into dilute NO_5, which immediately dissolves the copper. The stick of phosphorus is again introduced into the solution and heated as before, and this process is repeated as long as the P is blackened. The solution of copper in nitric acid is then evaporated, to remove excess of acid, and tested by appropriate means for copper. Viert. Jahr. Ph. xvi. 424.

Instead of precipitating copper from solution, in the presence of other metals, with zinc, Lecoq. de Boisbaudran proposes to effect its separation by means of an electric current. The slightly acid solution of the mixed metals is contained in a platinum crucible, which forms the negative pole of an electric current of two Bunsen cells; the positive pole consists of platinum foil passed through a perforated watch-glass, which answers as a cover. The Cu separates, in the course of a few hours, in a perfectly pure state. Ch. N., Nov. 22, 1867.

Prof. Gibbs makes some practical remarks on the assay of copper ores, with special reference to the precipitation of the Cu by hypophosphorous acid. Ch. N. April 3, 1868.

Carbonate of Copper. The recently precipitated carbonate of copper is soluble in 4690 p. of carbonic acid water, under a pressure of 4 to 6 atmospheres, according to recent experiments of R. Wagner. Lassaigne had previously stated that it required but 3333 p. of carbonic acid water. J. P. Ch. cii, 235.

LEAD.

Lead. F. Stolba gives a method for the estimation of lead in the metallic state. The lead is precipitated from its soluble or insoluble combination by means of zinc, in the presence of water, acidulated from time to time with HCl, in a platinum crucible, and at the temperature of a water bath. Ch. N., Jan. 3, 1868.

Chloride of Lead. J. Carter Bell states that white, needle-shaped crystals cannot be obtained from neutral solutions of chloride of lead; but if a slight excess of HCl is present in the solution it will crystallize in brilliant needles. The excess must not be too large, however, else they will no longer separate needle-shaped, but in the form of right-rhombic prisms. A pure saturated solution at 16·5° C. contains 0·9414 p. c. of chloride; the presence of HCl diminishes the solubility of the salt in ratio to the amount of free acid. Ch. N. Aug. 9, 1867.

Iodide of Lead. According to Jeannel, it is a common and erroneous idea that iodide of lead is soluble in iodide of potassium. On the contrary, a saturated solution of iodide of lead is precipitated on the addition of iodide of potassium. PbI is soluble in 1562 parts of water at 20° C. A solution containing one-forty-thousandth part of nitrate of lead, gives a distinct precipitate with iodide of potassium. Viert. Jahr. Ph. xvii, 106.

Carbonate of Lead. One litre of carbonic acid water is capable of dissolving, according to R. Wagner, 0·39 grm. of carbonate of lead, when the latter is digested with it at ordinary temperature for several months. J. P. Ch. cii, 237.

White Lead. M. Girard has invented a new process for its manufacture. Granulated lead is placed in a rotating cask of beach, elm or oak wood, with one-fourth its weight of pure water. The cask is caused to rotate at the rate of 30 to 40 revolutions per minute, and appropriate arrangements being made for the passage of a current of air during the rotation, the lead is found to be oxidized at the end of two hours. Carbonic acid is then introduced instead of air, and the rotation continued for from 4 to 6 hours, when the lead is found almost completely carbonated, and may be separated from any metallic particles not acted upon by elutriation. Ch. N., July 3, 1868.

Plumbate of Soda, which is recommended to be used for deodorizing petroleum oils, when the odorous compounds happen to contain sulphur, is prepared by boiling litharge in a tolerably concentrated solution of caustic soda, by which a clear solution is formed containing considerable oxide of lead, apparently playing the part of an acid. Ch. N. Jan. 10, 1868. A. J. Ph. xl, 277.

THALLIUM.

Thallium is extracted by Wöhler from flue dust by the following process: The material is repeatedly extracted by boiling water, slightly acidulated with SO_3, and filtered; the filtrate is precipitated with HCl; the chloride formed is converted into sulphate, and the latter in aqueous solution reduced by zinc or an electric current derived from a single cell. The metal is finally fused under a layer of cyanide of potassium. Ch. N. Aug. 9, 1867.

Carstanjen has obtained alloys of this metal with As, Sb, Zn, Cd, Bi, Pb, Sn, Cu, Hg, Al, Mg, Na, K, all of which are described in J. p. Ch. ciii, 65–89.

Thallium Amalgam. According to Regnault, thallium unites with mercury with evolution of heat, forming an amalgam which is electro-negative, compared with thallium; another proof of the rule that, when a metal dissolves in Hg with evolution of heat, the metal is electro-positive in comparison with its amalgam. Compt. rend. lxiv, 611. Ch. N. Aug. 9, 1867.

Double Chloride of Thallium and Iron is formed, according to

Wöhler, when recently precipitated moist chloride of thallium is added to a concentrated solution of sesquichloride of iron containing an excess of strong HCl. A red product is formed, the composition of which is $3Th\,Cl+Fe_2Cl_3$. It is soluble in hot concentrated HCl, from which it separates, on cooling, in red prismatic crystals; water decomposes it with separation of chloride of thallium. Ch. N. Ap. 3, 1868.

The chloride, iodide and bromide of thallium are described and commented upon by Carstanjen. They are all exceedingly insoluble compounds of a white color, resembling, when recently precipitated, chloride of silver. J. p. Ch. cii, 141 to 144.

Carbonate of Thallium. The process of Böttger, by which the carbonate is prepared by exposing the metal in a finely divided and moist condition to the atmosphere, is not applicable on a large scale, according to Carstanjen, who proposes its preparation by digesting a solution of sulphate of thallium with carbonate of baryta. The precipitated sulphate of baryta must be well washed, as portions of the carbonate of thallium adhere to it tenaciously. On concentrating the filtered solution, the carbonate crystallizes out in the form of shining needle-shaped crystals, of a slight yellowish color, but perfectly pure. The yellowish color appears to be of organic origin and may be removed by precipitating the aqueous solution with alcohol. Ibid. 129.

Bicarbonate of Thallium ($ThO,2CO_2$) is produced, according to the same author, by passing carbonic acid into the aqueous solution of the neutral carbonate, and adding 4 volumes of alcohol, by which most of the acid salt is precipitated. It is tolerably soluble in cold water, but by boiling is decomposed. Ibid. 130.

Sulphate of Thallium. From a concentrated solution of sulphate of thallium the salt crystallizes in handsome needle-shaped crystals, frequently two inches long; it can be melted without decomposition. The metal dissolves directly in dilute sulphuric acid, in which it is not quite as soluble as zinc. Ibid. 131.

Bisulphate of Thallium is produced when a solution of the neutral sulphate in concentrated sulphuric acid is diluted with

a little water. The precipitate, when collected, may be dried on a porous tile, and is resolved, when heated above its melting point into the neutral salt, with evolution of SO_3. Ibid. 132.

Nitrate of Thallium. Of all acids, nitric acid dissolves thallium most readily, when concentrated with evolution of nitric oxide and when very dilute with evolution of hydrogen. The nitrate is the most soluble compound of thallium, crystallizes in milky white, opaque crystals, and may be melted without decomposition. Ibid. 133.

Phosphate of Thallium is produced by adding to a neutral solution of a salt of thallium, phosphate of soda and a few drops of ammonia; it crystallizes on standing for some time if the solutions have been sufficiently concentrated in the form of a magma of silky needles. Ibid. 133.

Chromate of Thallium is formed when a solution of chromic acid is saturated with carbonate of thallium. An exceedingly insoluble yellow compound is formed resembling chromate of lead. It is not acted upon by acetic or nitric acid. Chlorhydric acid converts it into chloride; hot dilute sulphuric acid into *Bichromate of Thallium*, which is, however, best prepared by precipitating a neutral salt of thallium with bichromate of potassa. It forms a red insoluble crystalline powder. Ibid. 134–5.

(Would it not be best to prepare the neutral chromate also by double decomposition, instead of saturating chromic acid with the carbonate? C. L. D.)

TIN.

Tin has been found lately, according to Rossler, in Missouri, where it occurs as vein ore and wood or stream tin; but it is not known whether it occurs in sufficient quantities to render the source valuable. A. D. Cir. xii, 159.

Stannate of Soda. Moberg and Rammelsberg have obtained this compound in crystals containing 3 molecules of water, by simply evaporating its solution. Hæffely, by redissolving these crystals in their mother liquor, obtained crystals containing 8 molecules of water, and Scheurer-Kæstner has obtained them with 10 molecules. Ch. N. Sep. 27, 1868.

TITANIUM.

Titanic Acid. The great difficulties attending the estimation of *titanic* in the presence of *niobic acid*, have been overcome by C. Marignac, by the following process: 0·5 grammes of the mixed acids are fused with 1·5 grm. fluoride of potassium. The mixture on cooling is dissolved in HCl sp. gr. 1·015, and reduced by plunging a rod of zinc into the solution, precautions being taken to prevent access of air. Under these conditions niobic acid remains unchanged, while titanic acid is reduced to sesquioxide, and may be estimated by volumetric solution of permanganate of potasssa. Ch. N. Mar. 6, 1868.

Iodide of Titanium is readily obtained, according to Hautefeuille, by the action of hydriodic acid upon chloride of titanium, and may be purified by repeated sublimation in a current of hydrogen. It forms a brittle brown mass, fuses at 150°C, and crystallizes on cooling; it is soluble in water, but the solution soon decomposes, precipitating titanic acid. Bull. Soc. Chim. vii, 201. Ch. N. July 12, 1867.

TUNGSTEN.

Tungsten appears to possess the property of rendering iron very hard, and this is applied, according to Prof. van der Weyde, for preparing *tungsten steel.* With the blade of a knife, made with this kind of steel, the Professor has cut glass with a clear diamond cut. According to Dr. Feuchtwanger, this metal has been found in Nevada, and a mine has recently been discovered in Missouri. Dent. Cos. x, 167, from Am. Artizan.

Tungstates. The compound KO, 2 NaO, 3 WoO_3+14 HO is obtained by Ullick by melting together 1 eq. KO,CO_2 and 2 eq. NaO, CO_2 with tungstic acid. From the solution, obtained by dissolving the melted mass, the double salt crystallizes in hexagonal prisms. These are freely soluble in hot and cold water, and melt below a red heat to a colorless, transparent liquid; on cooling, this solidifies to a crystalline mass, which is again readily soluble in water.

Tungstate of Magnesia. (MgO, WoO_3+7 HO) is formed by saturating hydrated tungstic acid with carbonate of magnesia

and allowing the solution to evaporate spontaneously. Saline crusts are first formed, which must be removed, as they are insoluble in water; the above compound then crystallizes out in shining prisms, which are permanent in the air, slowly soluble in cold, but readily soluble in hot water.

A Soda compound is also described by the author. Ch. C. B. Dec. 4, 1867.

MOLYBDENUM.

Molybdates. F. Ullick has made extensive experiments on the compounds formed by this acid with bases. A new method for preparing molybdic acid is described, as also a large number of compounds of the following general formula: MO, MoO_3+nHO; MO, 2 MoO_3; 3 MO, 7 MoO_3+nHO; MO, 3 MoO_3+nHO; MO, 4 MoO_3+nHO; MO, 8 MoO_3+nHO. (Mo = 48 O = 8). A number of double salts are also described. Ch. C. B. Dec. 4, 1867. (MO = oxide of molecule).

Phospho-molybdic Acid. Debray has instituted numerous researches on the reaction of this acid with metallic bases. The oxides of the heavy metals are not precipitated by this reagent, and bismuth, which forms an insoluble compound with phosphoric acid, is no exception to this rule. On the contrary the alkalies are precipitated from their acid solutions, forming compounds which may be represented by the general formula = 3 RO, PO_5, 20 MoO_3. The potassa and ammonia compounds contain additionally 3 equivalents of water of hydration. Ch. N. Ap. 17, 1868.

BISMUTH.

Bismuth is separated in the course of analysis from lead alloys by dissolving the suspected alloy in nitric acid, diluting the solution with water and immersing a strip of pure lead, upon which the bismuth is precipitated in the form of a black powder. This is immediately removed from the lead, washed and weighed. A. D. Cir. xi, 207.

Sub-nitrate of Bismuth. M. Roussin has found this adulterated with 28 p. c. of phosphate of lime, which may be detected by dissolving 15 grs. in a little nitric acid, or, better, muriatic

acid, adding tartaric acid, followed by excess of solution of caustic potassa. Bismuth remains in solution, while phosphate of lime, if present, is precipitated. A. J. Ph. xl, 334.

Sub-nitrate of Bismuth. Dr. Gunning calls attention to the fact that nearly all the metallic bismuth of commerce contains arsenic, and states that, in preparing the subnitrate, he has found no difficulty in removing the arsenic, if the solution of bismuth in nitric acid is so far diluted that a slight permanent precipitate is formed, which, when permitted to subside, contains all the arsenic. Ch. N. May 29, 1868.

ARSENIC AND ANTIMONY.

The double fluorides of arsenic and antimony, with the fluorides of potassium, sodium and ammonium, are the subject of a paper by Marignac, in which these compounds and the processes for their preparation are fully described. Ann.Ch. Ph. cxlv, 237.

SILVER.

Chloride of Silver, deposited perfectly pure in a sealed tube, in presence of excess of chlorine water, may be exposed to direct sunlight, according to Morris, without becoming colored, as long as the yellow supernatant liquid indicates unchanged chlorine. When the yellow color disappears, it is slowly changed to a brown red color (not the deep violet, usually observed in photography), which disappears again, however, when exposed to diffused daylight, and the chloride assumes its brilliant white aspect. Ch. N. Dec. 13, 1868.

Hypochlorite of Silver is produced, according to Stas, when a slow current of chlorine is passed into water containing carbonate of silver in suspension. It is sufficiently stable in the presence of carbonate or oxide of silver to remain undecomposed for several days, but in their absence is very unstable. It is exceedingly soluble in water; when filtered from excess of carbonate it is decomposed, forming chloride and

Chlorate of Silver, and the author recommends it for the preparation of this salt. Ch. News, Aug. 16, 1867.

Permanganate of Silver is recommended by Crookes for puri-

fying water from organic matter. By its action, water, containing organic matter as impurity, assumes a deep brown color, and shortly a deep brown precipitate is formed, consisting of peroxide of manganese and oxide of silver. N. Jahr. Ph. xxviii, 87.

GOLD.

Reduction of Gold. It is recommended by a writer in Photograph. Archiv. to reduce solutions of gold by means of peroxide of hydrogen. A comparatively small amount will answer; the gold solution is preferably slightly alkaline. N. Jahr. Ph. xxviii, 85.

Purple of Cassius. The experiments of Fisher demonstrate that the purple of Cassius is a mixture of metallic gold and oxide of tin. The gold, on addition of proto-chloride of tin to its chloride, is precipitated in its purple modification with formation of perchloride of tin; but the precipitate does not subside until the perchloride of tin has suffered further decomposition into oxide of tin and muriatic acid. The molecules of the gold attach themselves to the oxide and are then precipitated. This precipitate is not affected by liquor ammoniæ, and but slightly by nitric acid of sp. gr. 1·17; but muriatic acid changes the color to a cinnamon brown, owing to the removal of the oxide of tin. When recently precipitated it is soluble in solution of chloride of gold. Viert. Jahr. Ph. xvi, 555.

PLATINUM.

A compound of Platinum, Chlorine and Carbonic Oxide has been discovered by Schützenberger. The author, in endeavoring to effect the synthesis of oxychloride of carbon without the intervention of light, caused a mixture of dry carbonic oxide and chlorine to pass over spongy platinum, heated to 400° C., and found that, in addition to the formation of sensible quantities of oxychloride of carbon, a solid and volatile compound of platinum was produced, and was collected in the cold part of the tube, forming a clear yellow, flaky powder. It is composed of platinum, chlorine and oxide of carbon, and is capable of crystallization. Ch. N. April 17, 1868.

PALLADIUM.

Sulphide of Pallad-ammonium is precipitated, according to Prof. Craft, when dilute HS, or very dilute $NH_4 S$, is added to a solution of $NH_3 PdCl$, forming a bright or orange-red powder, which is changed very rapidly to brown or brown-black sulphide of palladium. Ch. N., Aug. 2, 1867.

Palladio-Bichloride of Potassium is prepared by passing chlorine through a concentrated solution of palladio-protochloride of potassium, forming a fine scarlet-colored precipitate. It has the composition $= PdCl_2, KCl$, and exhibits a remarkable change when heated, turning quite black, but returning to its original color on cooling. If heated too strongly it fuses, loses chlorine and is re-converted into the proto-compound. Ibid.

ORGANIC CHEMISTRY.

CYANOGEN COMPOUNDS.

Cyanogen is produced, according to De Romilley, when illuminating gas is passed through ammonia solution and subsequently burned. The method of formation is similar to that suggested by Scheele and Liebig, and actually carried out by Langlois, when he passed ammoniacal gas over ignited charcoal. Cyanide of ammonium is formed. Dingl. Polyt. Jour. A. D. Cir. xii, 149.

Homologues of Hydrocyanic Acid. Dr. A. W. Hoffmann has discovered several new homologues of hydrocyanic acid, viz.: cyanide of phenyl, cyanide of ethyl and cyanide of amyl. The first named compound is formed by distilling a mixture of aniline, chloroform and alcoholic solution of potassa, and forms a blue, oily liquid, possessing a powerful odor and of composition $C_7 H_5 N$. Cyanide of ethyl is formed similarly, substituting ethylamine for aniline, and the cyanide of amyl by substituting amylamine. The latter is a transparent, colorless liquid, lighter than water, insoluble in water, but soluble in alcohol and ether; of an

offensive odor, resembling at the same time that of amylic alcohol and hydrocyanic acid. Ch. N., Dec. 20, 1867.

Cyanhydrate of Aldehyde. By the action of equivalents of anhydrous prussic acid and aldehyde, at ordinary temperatures, for 10 or 12 days, this new compound is obtained, according to M. Simpson and A. Gautier. It is a colorless liquid, having a faint odor of its generators and a burning, acrid taste; is not readily decomposed at 150° C., but partially at 180° C. It is equally soluble in alcohol and water. Ch. N., Nov. 1, 1867.

Cyanacetic Acid, the process of its preparation and the characteristics of its salts, are described by Th. Meves, in Ann. Ch. Ph. cxviii, 201. The latter are nearly all soluble in water, and are prepared either by saturating the free acid with the required base, or by double decomposition between the ammonia salt and the neutral salt of the desired radical. Ch. N., Jan. 3, 1868.

Cyanhydrochloric Acid. This compound, which A. Gautier had heretofore vainly endeavored to produce, he has now succeeded in forming. Dry chlorhydric acid is passed through anhydrous cyanhydric acid, kept at 10° C. until the liquid is saturated. If the retort is then hermetically closed and heated to + 35° or 40° C., lively reaction ensues, the liquid becomes quite hot and a white, crystalline mass results, which is the compound in question. Its composition is C_2NH, HCl. It is a crystalline body, odorless, of a saline, sour taste, soluble in water, alcohol and glacial acetic acid, but is rapidly changed in these solutions. Ann. Ch. Ph. cxl, 118.

Cyanide of Thallium appears, according to the experiments of Carstanjen, to be a very soluble compound, as a mixture of very concentrated solutions of a salt of protoxide of thallium and cyanide of potassium became but slightly turbid. A double compound with platinum, of composition PtCy, ThCy, was obtained by the author, in form of blood-red needles, possessing, in reflected light, a greenish color. J. P. Ch. cii, 144.

Cyanide of Pallad-ammonium is readily obtained, according to Prof. Crafts, when cyanhydric acid is added to a solution of palladio-protochloride of ammonium, forming white, powdery

crystals, which are soluble in hot water, and on analysis proved to be Fehling's salt. Ch. News, Aug. 2, 1867.

Double Cyanides and Cyanates of Manganese. Eaton and Fittig have experimented extensively on the double cyanides and cyanates of manganese with the cyanides of potassium, sodium, ammonium, barium and calcium, by which they determine the analogy of these compounds with the corresponding iron compounds. Their composition follows the same general formulæ; but while the iron compounds are characterized by stability, the manganese compounds, which are all remarkable for their beautiful coloration, are very readily decomposed. Ann. Ch. Ph. cxlv, 157.

Cyanate of Lead is prepared, by J. Williams, by fusing cyanide of potassium (containing at least 90 p. c. cyanide) at a very low red heat in a shallow, iron vessel, and adding, gradually, red lead, with constant stirring, so as to prevent the temperature from rising too much. The cooled and finely powdered product is exhausted with successive portions of cold water, the liquid filtered, and nitrate of barium added, which precipitates carbonate of baryta. The mother liquid, when treated with nitrate of lead, yields pure cyanate of lead, which is then thoroughly washed and dried by gentle heat. It is a permanent salt, recommended by the author for preparing urea. A. J. Ph. xl, 260.

Ferrocyanide of Cadmium and Potassium. The yellowish-white precipitate produced in solution of sulphate of cadmium on addition of ferrocyanide of potassium, and which had heretofore been described as a ferro- or ferricyanide of cadmium, is, according to the experiments of C. Henmann, a regular compound of ferrocyanogen with cadmium and potassium; its composition being Cd K Cfo. Ann. Ch. Ph. cxlv, 235.

Sulphocyanides. J. Philipp has produced a number of new compounds of sulphocyanide of potassium with mercury.

Sulphocyanide of Potassium and Mercury is produced by the action of sulphocyanide of potassium on the corresponding mercury compound. It forms yellowish needles, tolerably soluble in warm water, with difficulty in cold water, by large quantities of which it is decomposed.

Sulphocyanide of Potassium and Cyanide of Mercury is formed when concentrated solutions of the sulphocyanide and cyanide are mixed, separating in form of a crystalline magma; from dilute it separates in the form of pearly, lustrous scales, which are with difficulty soluble in cold water, but are readily crystallized from hot solutions, forming, under these conditions, delicate prisms.

Sulphocyanide of Potassium and Iodide of Mercury is formed by saturating a concentrated solution of sulphocyanide of potassium with biniodide of mercury and evaporating over sulphuric acid. It forms an exceedingly deliquescent powder, which is permanent in the air; but on addition of water, or by shaking or boiling its solution, biniodide of mercury is precipitated. Ch. C. B., Nov. 30, 1867.

Sulphocyanide of Iron. Mr. Wm. Skey has observed that when a solution of sesquichloride of iron and an alkaline sulphocyanide is treated with a large excess of HCl, there is evolved, even at common temperatures, a notable quantity of a red colored compound, which may be collected, and gives reactions of iron and sulphocyanogen. When collected on paper it is not again volatilized at a temperature of 200° C.; but the color immediately disappears on moistening the paper with water. Its composition has not yet been determined. Ch. N. Oct. 4, 1867.

Sulphocyanide of Cobalt is prepared, by the same author, by shaking a mixture of aqueous solutions of a salt of cobalt and an alkaline sulphocyanide with ether, which appears to determine the double decomposition, and dissolves the new compound with a blue color. The solution, when allowed to evaporate spontaneously, affords splendid crystals of a dark-blue color. Ch. News, Oct. 18, 1867.

Sulphocyanide of Uranium is obtained in the same manner as the cobalt salt.

Sulphocyanide of Tungsten is best prepared by treating a solution of tungstate of ammonia with a sulphocyanide, and bringing the granular precipitate formed in contact with HCl and ether. In a short time the ether assumes a yellow color, and affords good indications of sulphocyanogen and tungsten. Ibid.

Sulphocyanide of Thallium is formed as an insoluble, white precipitate, when sulphocyanide of potassium is added to a solution of a salt of the protoxide of thallium. When this salt is heated with an excess of sulphocyanide of potassium, the double salt *sulphocyanide of thallium and potassium* is formed, which crystallizes in the form of large, handsome, shining prisms. J. P. Ch. cii, 145.

Double Sulphocyanides of Palladium are readily obtained, according to Prof. Crafts, by the formula given by Buckton for the corresponding platinum compounds. The potassium compound forms ruby-red crystals of considerable size, which are soluble in water and alcohol. It is anhydrous, and melts at a high temperature, giving off sulphur and bisulphide of carbon.

ORGANIC ACIDS.

Acetic Acid. Artus recommends finely-divided platinum for acidifying alcohol by the quick vinegar process. It is prepared by saturating charcoal lumps of the size of a filbert with a solution of 1 drachm of bichloride of platinum in 5 lb. alcohol, and then heating to redness in a covered crucible. The author placed 1½ lb. of this platinized charcoal upon a perforated diaphragm, in an ordinary vinegar tub 7 ft. high and 2½ to 3 ft. diameter, and obtained remarkable results, the acidification being more rapid and complete than when the ordinary process was pursued. Ch. C. B., April 15, 1868.

Acetate of Soda. According to G. Merz, the general view entertained, that this salt possesses alkaline reaction, is incorrect. He states that it colors tincture of litmus violet, and thus prevents the appearance of the pure red color which would otherwise be produced by the addition of a small quantity of acetic acid. It is indifferent to curcuma. J. P. Ch. ci, 301.

Prof. Böttger states that the heat given off by acetate of soda during crystallization, is at least double that by hyposulphite of soda, determined by him some years ago. This property exercises a retarding influence on its crystallization, and it is frequently observed that solutions remain liquid for a number of days, when not disturbed, and immediately become solid and

compact when a solid body is brought in contact with them. N. Rep. Ph. xvi, 568.

Fresenius proposes the analysis of crude acetate of soda from pyroligneous acid, by distilling to dryness a mixture of 5 grm. acetate, 50 cc. water, and 50 cc. phosphoric acid (of sp. gr. 1·2 and free from NO_5); the dry residue is distilled twice with 50 cc. dist. water; the resulting distillates are mixed, diluted to 250 cc. and the solution thus obtained titrated with standard soda solution. Ch. N. July 3, 1868.

Acetate af Thallium is prepared by Carstanjen by dissolving the metal in acetic acid, and evaporating until the solution becomes colored. On cooling, a brown crystalline mass results, which yields the pure acetate to absolute alcohol; this, on evaporation, deposits the salt in the form of white pearly scales, having a strong alkaline reaction. When heated it is decomposed with formation of a volatile organic thallium compound. J. p. Ch. cii, 139.

Di-iod-acetone, the corresponding iodine compound to Kane's di-chlor-aceton, has been produced by Simpson, by moderately heating a weak aqueous solution of chloride of iodine with pure acetone in a long-necked flask. At a temp. of 70°C. violent reaction results, and a dark oil separates, which when washed with water and diluted KO, and dried in vacuo, is the compound in question $= C_6 H_4 O_2 I_2$. It is a straw-yellow oil, heavier than water, possessing a sharp acrid taste, and cannot be distilled without decomposition. J. p. Ch. cii, 380.

Oxalic Acid has been obtained synthetically, by Berthelot, from acetylene, ethylene, propylene and allylene, by oxidation with permanganate of potassa. A number of homologous acids are formed at the same time, such as carbonic, formic, acetic, malonic acids, &c. J. p. Ch. ci, 278.

According to Claus, the acid product of the reduction of oxalic acid by hydrogen, obtained besides glycolic acid, and described by Church as isomeric with acetic acid, is not isomeric but identical with acetic acid. The author also states that the glycolic acid is entirely converted into acetic acid if the hydrogen is allowed to react upon it sufficiently long. Ann. Ch. Ph. cxlv, 253.

Oxalates of Thallium. The *neutral oxalate* is obtained, according to Carstanjen, when dilute solution of oxalic acid is saturated with carbonate of thallium until CO_2 ceases to be evolved. It forms short, column-shaped crystals, is freely soluble in water and possesses alkaline reaction. The *quadroxalate* is obtained when the carbonate is dissolved in a large excess of oxalic acid, crystallizing in handsome shining plates. It is but moderately soluble in cold water, but tolerably freely in boiling water. J. p. Ch. cii, 138.

Tartaric Acid in crude tartar is estimated, by Mr. G. H. Mann, as carbonic acid, by saturating the free acid with pure hydrate of potassa, evaporating the mixture to dryness, and heating in a closed porcelain crucible to redness. The CO_2 formed is estimated by the aid of one of the various forms of apparatus described by Fresenius in his work on quantitative analysis. Ch. N. Mar. 13, 1868.

MM. Inette and Ponteves, propose the preparation of tartaric acid from the marc of grapes, from which by their process a paying yield may be obtained. See A. J. Ph. xl, 331.

Crude Tartar. The estimation of available cream of tartar by the indirect method (i. e. estimating by the amount of carbonate of potassa produced by decomposing cream of tartar in a platinum crucible), is, according to Dr. Vogel, Jr., inaccurate when conducted by means of a blast. Crude tartar which indicated 90 per cent. of cream of tartar, when heated for a half an hour over a Bunsen burner, indicated but 85 per cent. when the heating was conducted with a blast. N. Rep. Ph. xvi, 554.

Tartrate of Thallium is obtained by Carstanjen in the form of large, bright crystals when a neutral solution of the carbonate in tartaric acid is evaporated to a syrupy consistence and allowed to cool. Kuhlman obtained it previously in the form of very delicate crystalline needles. Its solution reacts distinctly alkaline. The *acid tartrate* is produced when free tartaric acid is added to the solution of the neutral tartrate. This is very sparingly soluble in water, crystalline, and apparently isomorphous with bitratrate of potassa. J. p. Ch. cii, 140.

Tartaric and Citric Acids. According to E. T. Chapman and

M. N. Smith, tartaric acid or its salts will reduce a boiling alkaline solution of permanganate of potassa, the permanganic acid being reduced to the state of peroxide. Citric acid or the citrates under the same conditions will reduce the permanganate only to the state of manganate, which is readily indicated by the green color produced. These reactions are proposed as a distinguishing test between the two acids. It is suggested that manganate is most appropriately employed, as that is not affected by the citrates, but readily by the tartrates. A. D. Cir. xi. 182.

Citric Acid. Guido Schnitzer states that the reason for the decomposition of citrate of lime must be attributed to the use of an excess of lime, by which the fermentable components of the juice are also precipitated. If the acid remains in slight excess the citrate is obtained free from these, and when washed with water and dried rapidly at ordinary temperatures, will keep for years without decomposition.

The preparation of citric acid from citrate of magnesia, as recommended by Perret, is perhaps advantageously pursued in connection with the manufacture of acetic acid and sulphate of magnesia. The citrate of magnesia is decomposed by means of acetate of lime, by which citrate of lime and acetate of magnesia is formed. Sulphuric acid liberates citric acid and forms sulphate of lime in the one case, and in the other liberates acetic acid and forms sulphate of magnesia. N. Jahr. Ph. xxviii, 157.

Formic Acid is, according to Chapman, entirely destroyed by the reaction of sulphuric acid and bichromate of potassa, carbonic acid and water being formed. This explains why, by the oxidation of glycerine by means of bichromate of potassa, or the oxidation of starch, sugar, &c., formic acid is sometimes formed, and sometimes not a trace of it. J. p. Ch. ci, 384.

Butyric Acid. Berthelot has instituted a series of experiments upon the oxidation of butyric acid by means of permanganate of potassa, operating on solution of butyrate of potassa containing a considerable excess of alkali, and kept at 100°C. for several days. He found that this treatment resulted in the formation of carbonate, oxalate, succinate, acetate and propionate of the lime. Ch. N. Sep. 27, 1868.

Valerianic Acid. Lacoross and Jazukowitsch have experimented upon the influence of various proportions of materials on the yield of valerianic acid from fusel oil, and find the proportion advocated by Trautwein to give the most favorable results. These are 5·1 parts (by weight) $KO,2CrO_3$, 3·9 p. $HOSO_3$, 1 p. $C_{10}H_{12}O_2$ and 3·9 p. HO. The bichromate should be only coarsely powdered; the SO_3 added to the fusel oil in small quantities; the acid mixture added rapidly at first; afterwards drop by drop, but sufficiently rapid to keep the mixture boiling. N. Jahr. Ph. xxviii, 310.

Chloro-valerianic Acid, will yield, according to Schlebusch, by the action of caustic baryta, *valero-lactinic* acid, which Clarke and Fittig had previously obtained from bromo-valerianic acid by the action of oxide of silver.

Amido-valerianic Acid (butalamin) has been also obtained, by the author, by a similar process to that suggested by Clarke and Fittig. He states that it is wholly insoluble in alcohol. J. P. Ch. cii, 313.

Benzoic Acid is now produced in large quantities from naphthaline. Mr. Adolf Ott gives the following as the reactions occurring by the process of Laurent. The naphthaline is transformed into bi-chloride of naphthaline ($C_{20}H_8 2Cl_2$), which, by oxidation, is converted into phtalic acid ($C_{16}H_4O_6 2HO$), and the latter into phtalate of ammonia. From this, by simple distillation, phtalamide is formed ($C_{16}H_5NO_4$), which, when distilled with hydrate of lime, forms benzonitrile ($C_{14}H_5N$). On boiling this with solution of caustic soda benzoate of soda is formed, from which benzoic acid is readily precipitated. Ch. N. Dec. 13; 1867.

Fugger has obtained a *new organic acid* containing nitrogen, as a by-product in the preparation of benzoic acid from benzoin, by the wet process of Wöhler. It crystallizes in prisms, possesses a faintly acid taste, is sparingly soluble in cold water, almost insoluble in alcohol, ether and benzole, but readily dissolved by boiling water. It reacts feebly acid, but forms well-defined salts with bases. The author continues his experiments. Ch. C. B. 1868.

Succinic Acid, which Dr. Simpson obtained some years ago by the successive action of cyanide of potassium and caustic potassa upon bromide of ethylene, has since been obtained by him, by the same process, from chloride of ethylidene. Geuther had obtained it from chloride of ethylene. Ch. N. Nov. 8, 1867.

Succinates. Mr. J. Hooper, in a communication to Ch. News, makes the statement that the presence of acetic acid or soluble acetates, partially or entirely suspends the reaction of succinates on solutions of ferric salts. A. D. Cir. xii, 6.

(The presence of acetate of soda in solution of ferric chloride is, by older authorities, generally conceded to be beneficial to the precipitation of succinate of iron, forming a precipitate which does not exhibit the normal gelatinous character. This property is therefore taken advantage of in the preparation of succinate of iron, and it is, for this reason, questionable whether the above results will apply to all soluble acetates. C. L. D.)

Picrate of Potassa. According to K. Frisch, picrate of potassa is soluble in 273·3 p. water at 20° C. and 440·8 at 0° C., in 7356 p. alcohol of 90 p. c. at 20° C. Ch. C. B., Nov. 27, 1867.

Picramic Acid. Stenhouse reconciles the conflicting statements regarding the nature of the products produced by the action of nitric acid on picramic acid, by showing that, according to the degree of concentration of the NO_5 employed and the temperature reached, the products are picric acid and the *diazodinitrophenol* of Greiss. The latter substance is principally produced when much nitrous fumes are evolved. Ch. N. March 13, 1868.

Kinovic Acid, which had heretofore been regarded as a characteristic constituent of the cinchona barks, has been determined in tormentilla root by Rembold, who obtained it perfectly pure by boiling the coarsely powdered root with milk of lime, filtering the decoction and adding chlorhydric acid to slight acid reaction. The precipitate produced is washed, suspended in baryta water, boiled and filtered, the filtrate precipitated with chlorhydric acid, the precipitate washed, dissolved in alcohol and decolorized by boiling with animal charcoal. On distilling off a portion of the alcohol, a large proportion of the kinovic acid separates in

the form of a perfectly white, crystalline powder, possessing all the properties of kinovic acid from cinchona. Ann. Ch. Ph. cxlv, p. 5.

Tannic Acid is obtained perfectly odorless and soluble, by Heintz, from the commercial acid, by dissolving 6 p. in 12 p. of warm distilled water and shaking the solution with ½ to 1 p. of ether. In a few hours the pure solution of tannic acid has subsided, and when separated from the supernatant ethereal solution and evaporated yields the tannic acid pure. N. Jahr. Ph. xxviii, 220.

Querco-tannic Acid is best isolated from oak bark, according to A. Grabowsky, by fractional precipitation with acetate of lead, rejecting the first darker portions of the precipitate and collecting the lighter portions afterwards, which, when well washed, suspended in water, decomposed by sulphhydric acid and carefully evaporated, yields the acid in the form of a yellowish-brown, amorphous mass. By the action of mineral acids (SO_3), it is split into quercus-red and sugar. Ann. Ch. Ph. cxlv, 1.

Tannic Acid. The experiments of Van Tieghem with regard to the *gallic fermentation*, lead him to the following conclusions:

1. The transformation of tannic acid into gallic acid is not due to the pre-existence of a soluble ferment.

2. Tannic acid does not undergo metamorphosis by simple contact with air.

3. For tannic acid to undergo metamorphosis the development of a species of fungus in the solution is essential and sufficient. See Ch. N. Jan. 31, 1868.

Gallic Acid. According to T. Löwe, gallic acid is converted into *tannic acid* by the oxidizing influence of nitrate of silver. The oxidation is more complete if a salt of gallic acid is employed. J. P. Ch. cii. Ch. News, Jan. 31, 1868.

E. Grimaux has made the action of bromine upon gallic acid the subject of study, and finds that when Br is added in fractional portions to the acid, with constant stirring after each addition, lively reaction results; the mixture becomes colorless, and copious fumes of hydro-bromic acid are evolved. According to the quantity of bromine added, mono- or bi-bromated gallic acid is formed.

Monobromated Gallic Acid is prepared by rubbing together equivalents of bromine and gallic acid in the manner stated above, dissolving the resulting product in 5 to 6 times its weight of boiling water and allowing the filtered solution to evaporate spontaneously, by which the desired product is obtained in the form of small, shining, transparent, yellow, hexagonal plates, which at 100° C. become white and opaque. From concentrated boiling solutions it crystallizes in delicate, colorless needles. It is sparingly soluble in cold, but freely soluble in boiling water; soluble also in alcohol and ether; decomposed above 200° C. CaO and BaO water produce a rose-red, green, then orange-yellow color; ammonia and potassa, orange-yellow; chloride of iron, black.

Bi-bromated Gallic Acid is produced by triturating gallic acid with a little more than 2 eq. of bromine, dissolving the product in little more than three times its weight of boiling water, which on cooling deposits the bi-bromated acid pure. It crystallizes in long needles or prismatic plates, which are brittle, shining, generally colorless, sometimes yellow. It becomes colored when heated to 100° C., contains 1 eq. of water, which it does not part with at 120° C., melts and decomposes at 145° C. In point of solubility it corresponds with the monobromated acid. CaO and BaO produce a rose-red color, in excess, light-green, becoming dark-red on exposure to air. With its ethereal solution, BaO produces a beautiful indigo-blue color, which on addition of water becomes red; alkalies color it orange-yellow; in dilute solution, rose-red; chloride of iron, blue-black. Compt. rend. lxiv, 976. Ann. Ch. Ph. suppl. vol. v, 233.

Gallate of Silver, which was first obtained by Loire by the addition of nitrate of silver to a concentrated cold aqueous solution of gallic acid, has been obtained by Barfold by double decomposition between the gallate of an alkali and nitrate of silver. The solution of the gallate must contain an excess of gallic acid; a white crystalline precipitate is produced; the gallate is decomposed on standing, or by heating. J. p. Ch. cii, 314.

Rheo-tannic Acid. Kubly finds that the tannic acid of rhubarb differs materially from gallo-tannic acid, with which it has

generally been regarded identical. In its pure state and powdered it is yellowish-brown, astringent to the taste, insoluble in ether, soluble in water, and exceedingly soluble in alcohol and hot water. It possesses a decided acid reaction, and is composed of $C_{52} H_{26} O_{28}$. Heated in a test tube it emits white fumes. When boiled with dilute mineral acids it is split into fermentable sugar and *rheic acid.* Viert. Jahr. Ph. xviii, 1.

Rheic Acid, obtained by Kubly as above, possesses a pure astringent taste, is sparingly soluble in cold water, soluble in hot water and alcohol, insoluble in ether. When heated it is decomposed without melting, giving off white fumes. It reacts feebly acid and precipitates glue and the alkaloids from their solutions; salts of the sesquioxide of iron are precipitated dark blue. Its elementary constituents correspond with the formula, $C_{40} H_{16} O_{18}$. Viert. Jahr. Ph. xviii, 3.

Viridinic Acid, which Rochleder has obtained by an oxidizing process from *coffeo-tannic acid,* is prepared by C. Otakar Zech directly from coffee, by first removing the fatty matter from the bruised seeds by means of spirit of ether, and then exposing them in a moist condition to the action of the air, adding water frequently. In the course of a few days the mass will have assumed a dark green color, which indicates the formation of viridinic acid. By heating the mass with acetic acid and alcohol, treating the filtrate with acetate of lead, precipitating the lead with HS, the filtered solution will, on evaporation, yield the acid in form of an amorphous brown powder. Ann. Ch. Ph. 1867, 366. N. Rep. Ph. xvi, 116.

Filicic Acid. A. v. Grabowski gives to this acid, in Ch. C. B. 1867, pp. 469–472, the composition of $C_{28} H_{18} O_{10}$, in contradiction to the composition given it by Luck, 18 years ago, viz: $C_{16} H_{15} O_9$. The latter author questions the accuracy of Grabowsky's formula, which is based upon the composition of its products of decomposition with melted alkali, 2 eq. butyric acid $C_8 H_8 O_4$ and 1 eq. of phloroglucin $C_{12} H_6 O_6$ being formed with the supposed assimilation of 4 HO. Luck states that the formation of these products of decomposition can be explained just as well by his formula, by assuming that 2 eq. of filicic acid by

assimilating 4 eq. HO and 4 eq. O, will form 2 eq. butyric acid and 3 eq. phloroglucin. Ch. C. B. April 22, 1868.

Isodulcitic Acid is prepared by Malin from *isodulcit* (the saccharine product obtained when quercitrin is acted upon by mineral acids) by oxidation with nitric acid as long as nitrous fumes are evolved. The resulting acid is saturated with milk of lime; the solution of the lime salt precipitated by acetate of lead; the precipitate, after washing, decomposed by sulphhydric acid, and the acid solution thus obtained evaporated to crystallization. Granular, colorless and transparent crystals are readily obtained (if the solution has been decolorized by animal charcoal), which are freely soluble in water, but sparingly soluble in alcohol. It possesses a pure acid taste and does not reduce alkaline solutions of copper. It forms well defined compounds with baryta, lime, cadmium, lead, ammonia and silver, most of them being crystallizable, and is composed of $C_{12} H_{10} O_{18}$. Ann. Ch. Ph. cxlv, 197.

Chrysophanic Acid exists, according to the experiments of Kubly, in but limited quantities ready formed in rhubarb, in which case it is usually obtained in combination with fatty matter, forming a yellow, amorphous mass. It may be obtained from chrysophane by the action of dilute mineral acids. Viert. Jahr. Ph. xvii, 15.

Hydro-coffeic Acid is obtained by Hlasiwetz from *coffeic acid*, by heating the latter to moderate boiling with sodium amalgam, decomposing the sodium salt with SO_3, and treating the acid solution with ether, which on spontaneous evaporation yields the acid in crystals. It forms handsome, rhombic, colorless, anhydrous crystals, of a mild acid taste and decided acid reaction. It forms amorphous salt and has a composition of $C_{18}H_{10}O_8$. J. p. Ch. ciii, 42.

Hydro-paracumaric Acid is produced by the same author from paracumaric acid by the same process as above. It forms handsome mono-clinic crystals, which are not changed when heated to 100°C., but melts at 125°C. It is readily soluble in water, alcohol and ether and has the composition of $C_{18} H_{10} O_6$. Ibid, p. 45.

Hypogæic Acid. $C_{32}H_{30}O_4$, one of the peculiar acids of the oil of the seeds of *Arachis hypogæa*, is prepared by Schrœder, (in preference to the process of Gossmann and Sheven, given in Ann. Ch. Ph. xci, 177), by dissolving the mixed acids, obtained by the action of chlorhydric acid on the soda soap of the oil, in hot alcohol. On cooling, the solution deposits *arachinic acid*, which may be collected and purified. The mother liquors contain the *hypogæic acid*, contaminated with arachinic acid, from which it is purified by repeated treatment of the evaporated mother liquors with alcohol, until, on cooling, crystals will no longer separate. The alcoholic solution is then concentrated in a stream of hydrogen, when small, white crystals are deposited, which have a melting point of 33°C., and consist of the pure acid. Ann. Ch. Ph. cxliii, 22.

Monobromohypogæic Acid has been produced by the author in an impure state, by treating the bibromated compound with solution of potassa, forming a dark brown mass, which is readily soluble in alcohol and ether, possesses a pleasant fruity odor, and a melting point between 19° and 23°C. Its composition $=C_{32}H_{30}O_4Br$.

Bibromohypogæic Acid is obtained by the fractional addition of bromine until the product becomes permanently colored, and requires subsequent purification, when it is obtained in the form of a yellow, butter-like mass. It is uncrystallizable, insoluble in water, but readily dissolved by alcohol and ether. It melts at 29°C, and forms uncrystallizable salts, which are prepared with difficulty. Its composition is $C_{32}H_{30}O_4Br_2$. Ibid.

Erucic Acid. By the action of an alcoholic solution of potassa on the bromide of erucic acid, in a sealed tube and at a temperature of 140° to 150°C., from 7 to 8 hours, Haussknecht has obtained a new acid, which from its analogy to *stearolic acid* the author has named :—

Behenolic Acid. By the above treatment, a white mass separates on cooling, from which, when dissolved in water and treating the resulting solution with HCl, the acid is separated in an impure state. It is readily obtained pure by repeated crystallization from alcohol, and then crystallizes in shining colorless

needles which melt at 57·5°C. It forms salts, some of which are crystalline, others amorphous, and, with the exception of the salts of the alkalies, are insoluble in water. By the action of fuming nitric acid, added drop by drop,—

Di-oxybehenolic Acid is formed, which crystallizes in shining scales, possessing a faint yellow tint; is insoluble in water, and less readily soluble in alcohol than behenolic acid. It melts at 90° to 91° C., and forms monobasic, sparingly soluble or insoluble salts.

Along with this acid a peculiar oil and

Brassylic Acid is formed, and obtained in the form of white or faintly red scales, which are sparingly soluble in water, but readily in alcohol and ether. It melts at 108·5° C. and forms bibasic salts, of which those of the alkalies only are soluble in water and alcohol. Ann. Ch. Ph. cxliii, 40.

Brassidinic Acid is produced, according to the same author, by heating erucic acid with diluted nitric acid at a temperature of 60° to 70° C., until gaseous matter ceases to be given off. It is necessary, in order to avoid a higher temperature, to cool the vessel in which the reaction takes place carefully. In its pure state it forms colorless, shining scales, melts at 60° C. and is soluble in alcohol and ether. It is a very strong acid, and forms monobasic salts, of which those of the alkalies are soluble in water and alkalies and may be obtained in crystals. Ibid.

Camphoric Acid is, according to Hlasiwetz and Grabowsky, decomposed into butyric, valerianic and pimelic acid by the action of melting alkali. The *pimelic acid* is contained in the residual liquid after distilling off the butyric and valerianic acids. The author regards camphoric acid as a good source for obtaining pimelic acid with a view to studying its characters and settling the vexing discrepancies in the statements of various authors. Ann. Ch. Ph. cxlv, 205.

Melilotic Acid, which was several years ago obtained by Zwenger and Bodenbender, from *Melilotus officinalis*, has been subjected to further examination by Zwenger. Its salts are readily crystallizable. The salts of the alkalies and alkaline earths react weakly alkaline, while the ammonia salt and the salts

of the heavy metals possess acid reaction. Its sparingly soluble salts are prepared by double decomposition, while the more soluble salts are best prepared by saturating the free acid with the carbonate of the required base. They generally melt readily, some as low as 100° C.; its composition is $C_{18} H_{10} O_2$. The author obtained it artificially from coumarin (with which it occurs naturally in the plant), by the action of sodium amalgam in presence of water. Ann. Ch. Ph. suppl. vol. 1867, p. 100.

Capronic Acid, according to the experiments of J. C. Sticht, is formed during the butyric acid fermentation. Preparing the latter acid from St. John's bread, the author at first considered it probable that capronic acid pre-exists in the drug; but on repeating the experiment with starch, he also obtained capronic acid, thus showing that it is produced during the butyric fermentation. Viert. Jahr. Ph. xvii, 70.

Chlorsalylic Acid is produced from oil of gaultheria, by Glutz, by the action of perchloride of phosphorus, in proportion of 2 eq. of the latter to 1 eq. of the former. The reaction is violent at first, even in cooled vessels; heat is subsequently applied, and boiling continued for a day with cohobation. It is then distilled, and that portion of distillate passing above 220° C. is collected separately and poured into a large quantity of boiling water. The solution produced, when separated from oily chlorsalylic-trichloride, deposits the acid on cooling in the form of white needles. Ch. N. Jan. 3, 1868.

Trichlor-dracylic Acid is produced, by Janasch, by oxidizing trichlor-toluol with bichromate of potassa and sulphuric acid at a boiling temperature. It separates as an insoluble compound, which is purified by convertion into a soda salt and precipitation, and repeating this several times. It forms small, shining needles, which are insoluble in cold water, very slightly soluble in hot water, but readily soluble in alcohol and ether. Its composition is $C_{14} H_3 O_4 Cl_3$. The baryta salt is cyrstallizable; the silver salt a voluminous precipitate.

Phenic Acid. The researches of Mr. F. Crace Calvert, during the last few years, have resulted in the production of very pure phenic acid from the impure benzole of commerce. Phenic acid

has been prepared as pure from this source as it had been artificially by the reactions recently discovered by Wurtz and Kekulé. Ch. N. A. J. Ph. xxxix, 461.

The same author delivered a lecture on this subject before the Society for the encouragement of national industry in France, which is published in Ch. N. Dec., 1867.

Oxyphenylen-disulphonic Acid is, according to Weinhold, produced as a by-product in the preparation of *phenyloxy-sulphuric acid* by the action of ordinary sulphuric acid on phenol. He obtained it more readily and abundantly by the action of anhydrous sulphuric acid upon phenylic acid, and gives to it the following characteristics: Its solution may be evaporated to a syrupy liquid without decomposition, and when allowed to stand at rest for several weeks, deposits stellate groups of shining crystals of the acid, which is exceedingly deliquescent, freely soluble in water and alcohol, melts when heated, and is decomposed at a temperature of 100° C. Its salts, with the exception of the basic lead salts, are all soluble in water. Ann. Ch. Ph. cxliii, 58.

Bi-nitrophenylic Acid. Hans Gruner has contributed some further researches on the character of this acid and its salts. The author followed the process of Laurent for its production from the products of coal-tar oil passing between 150–200° C. by the action of nitric acid, and states that it is not necessary to employ weighed quantities of materials, it being only necessary to avoid high elevation of temperature. It is soluble in 21 p. water at 100° C., 197 p. at 18° C. and 7261 p. at 0° C. J. p. Ch. cii, 222.

Binitrophenylate of Silver, obtained by saturating the acid with carbonate, forms yellow, microscopic needles, which are sparingly soluble in water and alcohol, insoluble in ether, and cannot be re-crystallized without decomposition. Ibid. 225.

Binitrophenylate of Mercury, obtained by double decomposition between the potassa salt and bichloride of mercury, forms sparingly soluble, yellow needles. Ibid.

Binitrophenylate of Protoxide of Iron, obtained by double decomposition between the potassa salt and sulphate of protoxide

of iron, forms handsome green, fern-like leaves, which are readily soluble in water. Ibid.

Binitrophenylate of Nickel, obtained by digesting finely powdered hydrate of protoxide of nickel with the acid, at a boiling temperature, forms handsome, green needles, which contain 8 eq. of water and are freely soluble in water. Ibid.

Sulphophtalic Acid is obtained by O. Lœwe by heating phtalic acid with sulphuric anhydride to 100° or 105°C. in a sealed vessel. The product is dissolved in water, neutralized with carbonate of lead, and decomposed by HS. Ch. N. Feb. 1868.

Creasote. It has been observed that commercial creasote will form with ⅔ its weight of collodium a gelatinous compound; but according to the observations of Rust, this is not the case when *pure beach-tar creasote* is employed, and that carbolic acid is necessary to form the gelatinous compound. The author recommends this reaction as a test to distinguish between the two substances. Some other reactions are also given, by which they may be distinguished from each other. Ch. C. B. July 24, 1867. A. J. Ph. May, 1868.

Uric Acid. If uric acid is heated in a large quantity of water with peroxide of manganese as long as CO_2 is given off, it is, according to Wheeler, converted into a substance allied to *Allantoin*, urea and a trifling quantity of an amorphous substance. When heated in a small quantity of water under the same conditions it is transformed into urea, oxalic and carbonic acid, and but a very trifling amount of allantoin. Ch. N. Nov. 1, 1867.

Hippuric Acid. Reinsch, who has found *chenepodin* and *coumarin* in a large number of grasses examined by him, thinks it probable that *hippuric acid* is formed in the stomach of herbivorous animals by the decomposition of these principles. N. Jahr. Ph. xxviii, 65.

Hexacrolic Acid is, according to A. Claus, precipitated from a saturated solution of *acrolein* in aqueous or alcoholic solution of KO, by the addition of sulphuric acid. *Acrolic Acid* remains in solution. Ch. N. April 3, 1868.

Cantharidine, which Dragendorff in a former paper regarded

acid in its characters, has been subjected by him to further experiments, and combined with soda and magnesia. Besides these, Masing has obtained compounds with K, Li, NH_3, Ca, Sr, Ba, Zn, Cd, Be, Al, Ni, Co, Cu, Pb, Hg, Ag, Pd, Sn, and Bi. Many of these are crystalline; the salts of the alkalies, and of magnesia and zinc, are readily soluble in water; all the others with difficulty. The cantharidine combines with most of them in proportion of 2 to 1. The author assumes that by assimilation of 2 HO the cantharidine is converted into a hydrated acid, which he names *cantharadinic acid.* N. Rep. Ph. xvi, 527.

Dr. A. Fumouze advocates the following simplified process for preparing cantharidine, by which he avoids the difficulty of separating the fatty and other matters by which it is accompanied. The crushed flies are exhausted by chloroform as suggested by Procter; the solution is distilled to dryness by gentle heat, and the green residue treated with bisulphide of carbon, by which the resinous, fatty, waxy and other matters are dissolved, leaving the cantharidine as residue. This is washed with bisulphide of carbon, and crystallized from chloroform. Ph. J. Trans. ix, 296.

ORGANIC BASES.

Sublimation of the Alkaloids. Dr. Wm. A. Guy, in a paper on the sublimation of the alkaloids with a view to their determination in forensic analysis, reviews the work of Dr. Helwig—the originator of the process—and suggests some improvements. The author arrives at the following conclusions:

1. That the test of sublimation is easy of application, and successful with very minute quantities of alkaloids.

2. That sublimates may be obtained not only from the alkaloids themselves, but also from deposits furnished by their liquid solution—hence its value in forensic analysis.

3. That the salts of the alkaloids yield sublimates.

4. That the properties of sublimation by heat, and deposits on surfaces, are common to a large number of substances, both organic and inorganic.

5. That, as probably one half of the alkaloids and allied active principles yield characteristic sublimates, sublimation

ought to be admitted among the recognized properties of these bodies as a class.

The principal improvement on Dr. Helwig's process, suggested by Dr. Guy, consists in the application and management of the heating, by which he secures undecomposed, characteristic sublimates before charring occurs. Ph. J. Trans. A. J. Ph. xxxix, 432 and 538.

Superiodides of the Alkaloids are prepared by Jörgensen by precipitating a salt of the base with a solution of iodine in iodide of potassium. The author has examined a great number of superiodides of alkaloids, all of which are obtained from their alcoholic solutions in the form of brilliant crystals. Ann. Chim. Phys. xi, 114. Ch. N. Feb. 14, 1868.

Double Sulphocyanides of the Alkaloids with Metals. Skey has formed a new series of double compounds of the sulphocyanides of metals with alkaloids. They are produced when an acid solution of the alkaloid is brought in contact with a solution of a salt of zinc, tin, mercury or molybdenum, in the presence of hydro-sulphocyanic acid. To avoid the formation of single sulphocyanides, it is necessary that the solutions of the metals and alkaloids be of such strength that a sulphocyanide causes no precipitation in either solution separately.

These compounds are generally insoluble in cold water, slightly soluble in hot water, and freely so in alcohol; they are not affected by HCl or SO_3, but are decomposed by alkalies.

Morphia. Horsley states that when a hot solution of acetate of morphia is mixed with a few drops of solution of nitrate of silver, the latter is reduced to metallic silver, and if to the filtered solution nitric acid is then added, the blood red coloration is produced. The author states that by this test it is distinguished from all other alkaloids, and that $\frac{1}{200}$th grain of morphia may be recognized. The addition of red prussiate of potassa to solutions of morphia produces, in the course of a few hours, a cherry-red color. N. Jahr. Ph. xxviii, 309.

Sulphocyanides of Morphia and Zinc or Tin are, according to Skey, amorphous solids, but fuse at a slight elevation of temperature. The *mercury compound* is an oily liquid. Ch. N. Mar. 27, 1868.

The corresponding platinum compound has been obtained by the author, by bringing in contact solutions of ammonio-bichloride of platinum, a salt of morphia, and a soluble sulphocyanide. It is a red, oily looking, transparent substance. Ch. N. April 17, 1868.

Pseudo-morphia has recently been experimented upon by O. Hesse, who obtained it in the form of a delicate, crystalline precipitate, insoluble in water, alcohol, ether, chloroform, bisulphide of carbon and dilute sulphuric acid; but readily dissolved by caustic potassa and soda solutions and alcoholic solution of ammonia. It has no alkaline reaction and its compounds with chlorhydric acid react strongly acid. It is tasteless, as are also its salts. Conc. sulphuric acid dissolves it with an olive-green color; conc. nitric acid with an orange-red color, becoming yellow on standing. The composition given by the author is $C_{34}\ H_9\ NO_8$, and differs from that given by Pelletier. J. p. Ch. ci, 494.

Sulphate of Pseudo-morphia forms small, white scales resembling gypsum, and is soluble in 422 p. of water at 20° C., but insoluble in alcohol and ether.

Muriate of Pseudo-morphia is soluble in 70 p. of water at 20° C.; insoluble in alcohol and ether.

The *oxalate* forms small prisms, soluble in 1940 p. of water at 20° C.; the *tartrate* forms white prisms; the *nitrate* small, shining scales; the *chromate* yellow prisms, and the hydriodate also yellow prisms. All of these are sparingly soluble in water. Ibid.

Quinia. Stoddart recommends, as a test for the purity of quinia from quinidia, cinchonia and cinchonidia, to dissolve 6 grms. of the suspected article in a test tube, by 5 grm. sulphuric acid and 3 grm. of water; to this is added 7·5 grm. ether, 18 grm. alcohol and 2 grm. of an 8 p. c. solution of caustic soda. The mixture, when well shaken and allowed to rest for 12 hours, will deposit all the contaminating alkaloids, leaving the quinia in solution. The quinidia forms an oily layer at the bottom of the liquid. A. D. Cir. xi, 223.

M. Parrot recommends, as a test for *salicine* in quinia—by

which ½ p. c. is readily detected—to introduce the suspected salt in a flask containing a little water, adding to this a small quantity of sulphuric acid and a corresponding amount of bichromate of potassa. A curved tube, dipping into a little water, is attached and heat applied, when hydrate of salicyl will distil over if salicine is present, which may be determined by adding a few drops of perchloride of iron to the distillate, by which a more or less deep violet color is developed. N. Rep. Ph. xvi, 505. A. D. Cir. xii, 89.

Chlorate of Quinia is prepared, by C. L. Diehl, by dissolving 5 oz. of sulphate of quinia, by the aid of heat, in 1 gal. of distilled water, to which a small quantity of solution of chlorate of barium has been added, and adding, when all the quinia is dissolved, chlorate of barium in excess. The solution is then immediately filtered, and on cooling forms handsome acicular needles, which are arranged in mushroom-shaped tufts, as mentioned by Tichborne. Although more soluble than the sulphate, it is still a sparingly soluble salt. The author also prepared

Chlorate of Cinchonia by the above process, which resembles the quinia compound, and

Chlorate of Quinidia, which crystallizes in solid, tubular crystals.

Bichlorate of Quinia appears to exist, and was obtained by double decomposition between bisulphate of quinia and chlorate of barium. It was obtained in the amorphous state, being an exceedingly soluble compound, and was slightly colored. It deflagrates with extreme violence when brought into contact with flame. A. J. Ph. xl, 101.

Ferrocyanate of Quinia is, according to the same author, more or less dark green in color if the alcoholic solution is evaporated on a water bath, while when evaporated spontaneously a straw colored compound is produced. The author, therefore, contrary to the statement of Pelouze that it is merely a mixture of Prussian blue with pure quinine, regards it as a true compound, which is, however, readily decomposed by heat, as the color assumed by the solution when heated is such as would be produced by a yellow solution with Prussian blue. Ibid, 104.

Sulphocyanide of Quinia and Zinc, as obtained by Skey, is solid and brittle at 70° C., plastic at 90° C. and fluid at 200° C. On cooling it appears to crystallize. Ch. N. March 27, 1868.

Sulphocyanide of Quinia and Tungsten falls as a gelatinous, yellow precipitate when an alkaline tungstate, with excess of a soluble sulphocyanide, is acidified and brought in contact with a solution of quinia. The compound gradually acquires a green color; it is fusible at a low temperature. Ibid. April 17, 1868.

The *gold* compound forms granular crystals. Ibid.

Bi-nitrophenylate of Quinia, according to Gruner, separates from a boiling, concentrated alcoholic solution in the form of orange-colored tufts of needles. It is sparingly soluble in alcohol, nearly insoluble in water and insoluble in ether. J. p. Ch. cii, 227.

Strychnia. Riekher, who has for the past eleven years experimented upon the influence of putrefactive decomposition on the forensic determination of strychnia, finds that the alkaloid can readily be determined in the heart, lung and liver of a steer, after it had been kept for eleven years in loosely covered jars, under the roof a house. N. Jahr. Ph. xxix, 1.

Sulphocyanide of Atropia and Gold is obtained, by Skey, in the form of red, oily drops, by adding a salt of atropia to a solution of sulphocyanide of gold in sulphocyanide of potassium. Ch. N. April 17, 1868.

Hyoscyamia. Rennard, who has operated upon the seed and herb of Hyoscyamus niger for the production of hyoscyamia according to the various published processes, has determined the following to be the most economical: The seed or herb is extracted twice with water acidulated with SO_3, nearly saturated with MgO, diluted with its volume of alcohol and filtered. From this solution the alcohol is distilled, the residue filtered and shaken with ether to separate oily matter. The liquid separated from the ether is super-saturated with ammonia and again shaken with ether, which on evaporation yields the hyoscyamia as a yellow, amorphous mass, which may be purified by re-solution in acidulated water, precipitation with ammonia and separation by ether. Although this process yields larger than any other, the

author was unable to obtain sufficient alkaloid from 5 kilogrm. seeds to institute elementary analysis. It possesses the following characteristics: a yellowish, amorphous, tough mass, possessing alkaline reaction and bitter taste; soluble in water, alcohol, ether, benzole, chloroform and amylic alcohol; insoluble in petroleum benzine. N. Rep. Ph. xvi, 91.

Prof. Wadgymar has obtained results which differ considerably from the above. From 1 pound of fresh leaves he obtained 11 grains of hyoscyamia; while from 1 pound seeds he obtained 41 grains. He states that it forms colorless, transparent, silky needles, of an acrid, burning taste, inodorous; nearly insoluble in water, but readily soluble in alcohol and ether. At a gentle heat it is volatilized and sublimed, unchanged, in beautiful long white silky needles, 1½–2 lines long. It neutralizes acids completely, forming salts, which are, with the exception of the sulphate, all deliquescent. See Proceedings 1867, p. 404.

Colchicine. The experiments of C. L. Diehl would indicate that colchicine from the seeds of Colchicum autumnale is not an alkaloid. The author finds the resin, obtained by treating colchicine with dilute mineral acid for colchiceine, to have decided acid properties, and proposes that it be named *colchiceic acid.* Proceedings 1867, p. 363.

Berberina has been obtained by Stenhouse in the proportion of 1½ to 3½ per cent. from *Coscinium fenestratum*, by the following process. The wood is boiled in a solution of basic acetate of lead containing litharge in excess. The decoction after filtering is evaporated with a little litharge. On cooling the concentrated solution a portion of the berberina crystallizes out in the form of dark-brown tufts of needles, and the remainder is precipitated as nitrate by the addition of nitric acid. It is purified by boiling the nitrate with milk of lime, and allowing the base to crystallize from the filtered solution; the total yield of berberina is then redissolved in boiling water, treated with basic acetate of lead and the hot solution filtered, which on cooling yields the base in the form of yellow needles, contaminated with a little lead, from which they are readily purified by treatment with HS, and recrystallization. N. Rep. Ph. xvi, 700.

Theina. Stenhouse has applied the above process successfully for preparing theina from tea. N. Rep. Ph. xvi, 701.

Chenopodina. Reinsch has succeeded in preparing chenopodina perfectly pure, and finds it to possess the following characteristics. It is a white, odorless and tasteless powder, soluble in 11 p. cold water and in 202 p. cold alcohol or 77 p. boiling alcohol. It is volatilized at 160°C., subliming in delicate colorless needles; forms crystallizable salts with acids, and is converted into an acid by the action of boiling soda lye. The composition of the muriate is $C_{12} H_8 NO_8 HCl$. Ch. C. B. Jan. 4, 1868.

Urea is produced, according to Prof. Kolbe, when carbonate of ammonia is heated in sealed glass tubes, to a degree of temperature a little lower than that at which urea would be decomposed. Ch. N. Sep. 27, 1868.

J. Williams prepares urea by digesting cyanate of lead in solution of sulphate of ammonia. See cyanate of lead in this report. Ch. N. Dec. 13, 1867. A. J. Ph. xl, 260.

Pseudo-hexylurea. T. T. Chydonius obtained this compound by heating pseudo-hexyliodide with cyanate of silver to 50° or 60°C., when violent reaction sets in and a liquid, possessing a very disagreeable odor, distils over. On addition of ammonia in excess to this, a solid crystalline mass is formed, which, when recrystallized from water, forms the substance in question. It crystallizes in white needles, which are readily soluble in hot water, ether and alcohol; melt at 127°C; boil, with partial decomposition, at 220°C. and are composed of $C_{14} H_{16} O_2 N_2$. Ch. N. July 25, 1867.

Anilina. According to Rosenstiehl, chloride of lime produces a blue color with aniline and a brown one with toluidine; but a mixture of the two only shows a brown color. If, however, ether is added, the brown color is taken up by it, and the blue color of the aniline solution becomes visible. On these reactions the author bases a test for the presence of aniline when admixed with toluidine. See Ch. N. Feb. 23, 1868.

Dr. Brimeyer reviews the progress of the aniline industry as exemplified by the exhibition of aniline colors and processes at the Paris Exposition. Ch. C. B. Jan. 4, 1868.

The residual products and mother liquors for the manufacture of aniline colors frequently contain iodine, which is determined quantitatively by Fresenius, by evaporating the liquors with one-fifth p. of potassa to dryness, under a chimney with a good draft, and igniting ultimately. The mixture is dissolved in water, treated with a mixture of sulphuric and hyponitric acids, and taking up the iodine thus liberated by agitation with sulphide of carbon, which when properly washed with water to remove free acid, is titrated with hyposulphite of soda. Ch. N. July 3, 1868.

The benzole used in the manufacture of aniline colors always contains a variable proportion of toluole, which appears to be essential to the subsequent formation of colors. The boiling point of this mixture is 90°C. and it yields a nitrobenzole, the boiling point of which is 235°C., while that of pure nitrobenzole is 213°C. The nitrobenzole is now produced on a large scale in a cast iron apparatus, in which 12 p. benzole, 13 p. fuming nitric acid and 8 p. SO_3 react upon each other, forming about 15½ parts; the theoretical quantity would be 20 parts. The nitrobenzole is generally converted into *anilina* by Bechamp's process in cast iron tanks, provided with stirrers, steam heat, and condensing apparatus; the latter to collect any nitrobenzole that may be volatilized during the reaction. The charge is 100 p. nitrobenzole, 150 p. clean wrought iron filings, 100 p. water and 150 p. acetic acid, and the average yield 66 p. of aniline; the theoretical yield is 75 p. The product thus obtained is a mixture of aniline, toluidine and odorine, of a yellow or brown color and the odor peculiar to odorine (a hydrocarbon having a boiling of 143°C.). The boiling point varies between 180°C. and 250° C., and rarely agrees in two samples. A. D. Cir. xii, 57.

Aniline Red (Fuchsine) is produced by the action of 200 p. arsenic acid (AsO_5) on 100 p. of aniline, at a temperature of from 160° to 180°C. Ordinarily the reaction is completed in 6 hours, but occasionally it requires 12 hours. The completion of the process is determined by assay, and by the bronze color of the sample. The fused mass is transferred to iron tanks, and when cooled broken up, separated from resinous products of de-

composition and arsenious acids (AsO_3) by solution in water and treatment with milk of lime, and crystallized by evaporation and cooling. The yield of coloring matter varies from 29 to 38 p. c. Aniline containing two equivalents (?) of toluidine, gives the best yield of fuchsine. Ibid.

Aniline Blue is most generally prepared by the process of Girard and de Laire, by heating together fuchsine, fluid aniline and a small quantity of acetic acid or amylic alcohol; the latter substance causing the color to assume the pure blue color without the red tinge, frequently obtained.

Aniline Green is produced by heating a solution of sulphate of rosanilin in dilute sulphuric acid with aldehyde until the green color is formed, and precipitating with hyposulphite of soda.

Aniline Black is produced when salts of aniline are exposed to the action of certain oxidizers, as salts of copper, chlorate and bichromate of potassa. Ibid.

Chloride of Methyl-aniline, the new Paris violet, is obtained readily in large quantities. The methylaniline is produced by digesting aniline, chlorhydric acid and methylic alcohol in an iron vessel, under a very high pressure (frequently 140 atmospheres), and heating the product with iodine and chlorate of potassa. Insoluble hydriodide of the base is formed, which is decomposed by soda, and when saturated with chlorhydric acid forms the desired compound. This new violet is a compound of pure aniline only, while that of Hoffmann contains also toluidine. J. p. Ch. cii, 317.

ALCOHOLS AND ALLIED SUBSTANCES.

Alcohol. The following method is said to give the most definite results for recognizing the source of alcohol: Mix the alcohol with an equal bulk of pure ether, then add an equal bulk of water and separate the supernatant ether. On evaporating the ether spontaneously in a capsule, the residue will give the characteristic odor of the spirituous liquid from which the alcohol was obtained. Rum, arrack, cognac, potato and wood-spirit are thus easily distinguished. Ch. N. June 19, 1868.

When the fermented liquor, obtained from beet-juice, is recti-

fied by distillation, the first portions pass over highly odorous, and have been determined, by Piesse and Puchot, to contain butyric and prophylic alcohol and aldehyde. Ch. N. March 13, 1868.

Wine. E. Ludwig has determined the presence of *trymethylamine* in white Austrian wine, and gives the method by which he separated and identified it. Ch. N. March 20, 1868.

Alcoholate of Baryta. M. Berthelot has observed that, by the reaction of carbonic oxide in the cold upon alcoholic solution of baryta, the elements of water are separated from the alcohol at the moment of combination. The *alcoholate* can be obtained by boiling an alcoholic solution of baryta, when it is found to settle as an insoluble white powder. Ch. N. March 6, 1868.

Chlorinated Ether. Prof. Lieben states that the chlorinated ether discovered by him, although the first of the chlor-substitution products of ether, must be regarded as *bichlorinated ether.* He describes the process of its preparation and a series of derivatives, obtained from it by the action of oxide of zinc-ethyl, sodium-ethyl and sodium-methyl. The action of oxide of sodium-ethyl upon ethyl-chlorinated ether has also been investigated by the author, who likewise draws attention to two isomeres of bichlorinated ether. Wien. Ak. Ber. No. xxv, 1867.

Butyric Ether is recommended, by Stinde, to be prepared from the ripe fruit of *Ceratonia siliqua* (St. John's bread). The dry fruit as found in the markets yields, by distillation, from 2 to 3 p. c., but containing about 40 p. c. of glucose, this, by appropriate fermentation, is converted into butyric acid. The acid, as fast as formed, is saturated by whiting, kept in excess until the process is completed, usually occupying about six weeks. From the pulpy mass formed the ether is prepared directly, by adding to the product formed 100 ℔s, a mixture of 36 ℔s sulphuric acid, and 60 ℔s alcohol, 95 p. c., and distilling off the ether, reserving the first pound of distillate. After the ether is all distilled off, the residue will yield, by distillation with additional 19 ℔s of alcohol, a liquid which may be used as essence of pine apple. A. D. Cir. xi, 223.

Boric Ethers. Hugo Schiff, in continuation of his experiments

on the formation of boric ethers, has thoroughly investigated the various processes for their formation, and publishes his results in Ann. Ch. Ph. suppl. vol. v., 154. The following are some of the most important results:

Ethyl-monoborate is an inodorous, syrupy liquid, possessing, at 120° C., the consistence of fuming sulphuric acid. Exposed to the atmosphere, it absorbs moisture with great avidity, and is resolved into alcohol and boric acid; when brought in contact with water this result is attended with great elevation of temperature. It cannot be distilled without suffering decomposition.

Ethyl-triborate is a solid, resembling, when broken, gum arabic. Exposed to the atmosphere, its surface becomes coated with boric acid and then withstands further decomposition. It may be exposed to a temperature of 300° C. without sensible decomposition.

Methyl-monoborate resembles the corresponding ethyl compound in all its reactions, but is more colored and dense. At a temperature of 160° C. it is decomposed, forming

Methyl-triborate, a colored, glassy substance, resembling the corresponding ethyl compound in its reactions.

Amyl-monoborate is an oily liquid of sp. gr. 0·949 at 20° C., which cannot be distilled without decomposition.

Amyl-triborate has a sp. gr. of 0·872 at 0° C., and may be distilled with but partial decomposition.

Besides these, the author has prepared and examined the following compounds: *ethyl-diamylborate*, *amyl-diethylborate*, *methyl-diethylborate*, *cetyl-monoborate*, *glycerylborate*, *phenyl-mono-* and *triborate*.

Arsenic Ethers. J. M. Crafts, several years ago, observed that boric acid was capable of replacing silicic acid in silicic ether, and this prompted him to extend his experiments to other acids, with the expectation of similar results. His researches were first directed to arsenic acid, but he was unable to obtain arsenic ether, obtaining arsenious ether instead.

Arsenic Ether may, however, be obtained by the reaction of arseniate of silver upon iodide of ethyl mixed with two volumes

of ether. It is a liquid of sp. gr. 1·3161 at 8·8° C., mixes with water in all proportions, and forms solutions which behave to reagents like arsenic acid. It may be distilled in a partial vacuum without decomposition; under ordinary atmospheric pressure it distils at a temperature of 235° to 238° C., but towards the end of the process is partially decomposed.

Arsenious Ether is obtained by the action of arsenious acid upon silicic ether at a temperature of 220° C., and is separated from the precipitated silica by distillation. It boils at 166° to 168° C., has a sp. gr. of 1·224 at 0° C., and is immediately decomposed on addition of water. Ann. Ch. Ph. suppl. vol. v., 218.

Binitrophenylate of Oxide of Ethyl is formed, according to Gruner, by double decomposition between binitrophenylate of silver and iodide of ethyl, forming long, colorless needles, which become blackened by exposure to light, and are sparingly soluble in water, benzole and iodide of ethyl. The corresponding *methyl* and *amyl* compounds are obtained by substituting iodide of methyl or amyl for the ethyl compound. J. p. Ch. cii, 227.

Chloroform. Prof. Maisch, in A. J. Ph. xl, 289, gives his experience in the manufacture of chloroform while connected with the U. S. Army Laboratory, at Philadelphia, and reviews the various conditions under which chloroform will keep or decompose, and the means by which chloroform, decomposed by light, may be restored. The author maintains his former statements, that pure chloroform is not affected by light only when reduced to about sp. gr. 1·475, notwithstanding the assertions of Dr. Hager (Ibid. 319) to the contrary.

Methylic Alcohol. Dr. Hofmann has succeeded in transforming wood-spirit into aldehyde, a problem Dumas and Peligot vainly attempted to solve. It is obtained by the decomposing action of heat, by causing wood-spirit to traverse a long tube, containing a spiral of platinum, heated to incandescence. More than two-thirds of the wood-spirit is thus converted into aldehyde. Ch. N., Oct. 4, 1867.

Linneman has obtained methylic alcohol artificially from hydrocyanic acid, by converting it first into methylamine, by Men-

dius' method slightly modified, and converting the methylamine into the alcohol by means of nitrate of silver, according to the manner described in Ch. N. No. 436, p. 181. Ch. N. July 3, 1868.

Sierch has succeeded in preparing ethylic alcohol from methylic alcohol, by preparing acetonitrile from potassic methyl-sulphate, by the action of cyanide of potassium. The acetonitrile was converted into ethylamine, and from the nitrite of that base ethylic alcohol was obtained, containing, however, some methylic alcohol. Ann. Ch. Ph. cxlv, 46. Ch. N. July 3, 1868.

Valerianate of Oxide of Amyl is formed, according to Claus, when amylic alcohol, water and nitric acid—placed in a cylinder without mixing—are allowed to stand for a period of 4 months. Oxalic acid is formed at the same time.

Sulph-amylic Oxide, one of a new series of sulpho-compounds discovered by A. Saytzeff, fuses at 37° to 38° C., and is not acted upon by iodide of ethyl or amyl or iodide of zinc; but when heated with hydriodic acid to 100° C., in sealed tubes, a brown oil is formed, which is insoluble in water. The author has also formed ethylic and butylic sulpho-compounds. Ch. N. Aug. 23, 1867.

Ethyl-dimethyl-carbinol, the second link in the series of tertiary alcohols, which has heretofore not been produced, has been obtained, by Popoff, by exposing a mixture of 1 mol. of chlor-propionyl and 2 mol. of methylate of zinc in a cool place until colorless, prismatic crystals had formed, and decomposing these with water. It is freed from *keton* by distillation and addition of potash, shaking with concentrated solution of bisulphite of soda and drying, first over caustic potassa and finally over anhydrous baryta. It distils completely between 98·5° and 102°C., is a liquid resembling in odor trimethyl-carbinol, but does not solidify at a temperature of —17° C., becoming only of a syrupy consistence. Ann. Ch. Ph. cxlv.

Glycerine. Hager gives as a test for the purity of glycerine, for medicinal purposes, that if it be mixed with an equal volume of rectified sulphuric acid, in a test tube, no coloration or effervescence should be produced, although elevation of temperature results. Ordinary glycerine will effervesce when

thus treated, eliminating CO and CO_2. Distilled glycerines gave the reaction of a pure article, while those purified by chemical means produced effervesence. N. Rep. Ph. xvi, 55.

According to Dr. A. Vogel, Jr., glycerine dissolves 6·36 p. c. of borax, 6·9 p. c. of carbonate of potassa, 9·0 p. c. of nitrate of potassa, and 1·3 p. c. of sulphate of potassa. The glycerine employed for determining these figures was of sp. gr. 1·225. N. Rep. Ph. xvi, 556.

The experiments of Dr. Werner on glycerine that had become solidified on its way to England, would indicate that this property of glycerine is due to the presence of *chlorine*. The author having found chlorine present in appreciable quantities in the solidified glycerine, passed a few bubbles of gaseous chlorine through some chemically pure glycerine, and on exposing it to a freezing mixture for forty-eight hours, obtained small, shining, highly refractive crystals, which, when examined under the microscope, were found to be octohedrons. Ph. Zeit. Russ. vi, 819.

Fatty Alcohols. The process of Piria and Limpricht–Richter for preparing these alcohols synthetically, which consists in distilling the lime salt of a fatty acid with formiate of lime—by which the *aldehyde* corresponding to the fatty acid is produced—and converting the aldehyde into the alcohol by nascent hydrogen, has been experimentally examined by A. Siersch, with reference to propylic alcohol. The author has not succeeded in preparing the aldehyde by this process, and therefore does not regard it applicable for the production of the fatty alcohols as a class. Ann. Ch. Ph. J. p. Ch. cii, 311.

HYDROCARBONS AND ALLIED SUBSTANCES.

Hydrocarbons. It is stated, by Young, that the heavy oils of the coal-tar distillation are converted largely into the light oils (for illuminating purposes) by subjecting them to distillation under a pressure of 7 atmospheres. An ordinary steam boiler answers the purpose admirably, the heavy oil from bituminous coal requiring frequently the pressure of but 2 atmospheres. The process will also answer for such oils that have already undergone various degrees of rectification. Ch. C. B. July 31, 1867.

Fritzsche has instituted a series of investigations on the solid hydrocarbons of coal-tar, with reference to their isolation, physical characters, chemical relation, &c., the result of which will be found in Ch. C. B. July 17, 1867.

Berthelot finds that a number of hydrocarbons are readily oxidized by the action of permanganate of potassa, even at ordinary temperatures, and that a number of acids can be produced synthetically.

Acetylene, by the action of a permanganate, forms oxalic acid, a small quantity of which is in its turn converted into formic and carbonic acids.

Ethylene is as readily oxidized at ordinary temperatures, only somewhat slower, and forms formic, carbonic and oxalic acids.

Allylene, the homologue of acetylene, is converted, in the cold, into malonic acid, with a small formation of acetic and carbonic acids, as decomposition products of malonic acid. The same can be said of *propylene*, which, however, yields malonic acid more abundantly.

Styrolene yields benzoic and carbonic acids, and even *oil of turpentine* is readily oxidized at ordinary temperatures. Compt. rend., lxiv, 35. Ann. Ch. Ph., 1867.

Ethylene and Homologues. Birnbaum has prepared and investigated the compounds of *ethylene*, *propylene* and *amylene* with chloride of platinum, and corroborates the statements of Zeisse on the formation and composition of these compounds. Ann. Ch. Ph. cxlv, 67.

Acetylene. R. Rieth finds that the imperfect combustion of coal gas, which takes place when the flame of a Bunsen's burner has gone down so as to burn within the tube, is a rich source of *acetylene.* The escaping gases are collected by means of a funnel placed over the burner and connected with an aspirator. From one burner 100 grammes of the silver compound was obtained in 12 hours. Ch. N. Jan. 31, 1868.

Benzole. When benzole is treated with pure chlorous acid gas and distilled, the first portion of distillate consists of ben-

zole, then chloro-benzole and a little bichlorokinon, and if at 135° C. the distillation is suspended, the contents of the retort are found to consist almost entirely of *bichlorokinon*, which, if dissolved in hot alcohol, will yield it pure in handsome, yellow prisms and tables. J. p. Ch. ciii, 55-

Carius finds that, by the action of MnO_2 and SO_3, benzole is readily oxidized, producing benzoic acid and a new bibasic acid of composition $C_{12} H_4 O_6$, which he names oxybenzoic acid and considers probably identical with phtalic acid. It is sparingly soluble in water, fuses at 175° C. and distils, undecomposed, at 250° C. Ch. N. Sep. 27, 1867.

Azobenzole has been produced from anilin by Glaser, by treatment with chlorhydric acid and permanganate of potassa in certain proportions. A brown precipitate is produced, which, when washed with water and subjected to distillation, yields the azobenzole in the form of red, oily drops. By recrystallization from ethereal alcohol it was obtained pure, and found identical with the product obtained by Mitscherlich from nitrobenzole. J. p. Ch. cii, 189.

Bromo-benzyl. Lauth and Grimaux have attempted its preparation direct from toluene and have succeeded perfectly. It is formed when bromine vapor is passed into that of toluene; the undecomposed toluene is removed by rectification, until a temperature of 200°C. is reached, when pure bromo-benzyl distils over. The reaction is easy and rapid. Ann. Ch. Ph. cxlv, 113.

Rhigolene. The impression that rhigolene is explosive is refuted by the experiments of Dr. Jackson, who has subjected it to various severe tests. A. J. Ph. xl, 349.

Naphthalene. H. Vohl gives it the following characteristics: When pure, it is of sp. gr. 1·15173 at 19°C.; it fuses at 79·25°C., and boils at 217°C. In its fused or boiling state it is a powerful solvent for sulphur, phosphorus, sulphides, iodine, indigo, &c., and affords an excellent medium for recrystallization. J. p. Ch. cii, 29. Ch. N. April 3, 1868.

When naphthalene is heated with 2½ p. of sulphuric acid, it is completely converted into sulphonaphthalic acid, which, on con-

tinued heating, is converted into di-sulphonaphthalic acid. The salts of the latter acid are decomposed by fusing hydrate of potassa, forming a new body, having the composition of di-atomic phenol. This body is more soluble in water than naphthalene; it dissolves readily in caustic potassa, but this solution is decomposed instantaneously on exposure to air. Compt. rend. lxiv, 859. Ch. N. July 12, 1867.

Muth states that naphthalene may be obtained pure by the following simple process, from the crude product of the distillation of coal tar. The brown-colored crystals, deposited in the oily product of distillation, are mixed with twice their volume of quartz sand, and spread into a flat vessel on a water bath, to the height of 4 inches. The vessel is then covered with a cloth and covered hermetically with a box, into which the pure substance readily sublimes at the temperature of boiling water. Ch. C. B. July 31, 1867.

A process for preparing this hydrocarbon on a large scale is also given by Dr. Vohl, for which see Ch. C. B. Jan. 22, 1868.

Anthracen. The assertion of Anderson, that the anthracen lately described by Berthelot is identical with that described before by Fritzsche, is positively denied by the latter. The hydrocarbon of Berthelot and Anderson, obtained by the direct action of styrol or benzol (?), yields blue tables by Fritzsche's new test, while the one described by Fritszche yields magnificent violet red tables. The author regards Berthelot's article as a mixture of hydrocarbons. Ch. C. B. Jan. 15, 1868.

Toluol. By saturating toluol with chlorine, O. Pieper has obtained a chloro-derivative of composition $C_{14} H_6 Cl_8$. It separates in crystals, fuses at 150°C., is insoluble in water, sparingly soluble in alcohol, more so in ether, and freely in bisulphide of carbon. Hydrate of soda decomposes it. Ch. N. Aug. 2, 1867.

Cymol is produced from camphor, according to Longuinin and Lippmann, by slowly distilling an intimate mixture of equal molecules of camphor and perchloride of phosphorus. The distillate is washed with water, dried and rectified over sodium, and forms perfectly pure cymol, having its boiling point between

175° and 178°C. Bull. Soc. Chim, vii, 374. Ch. N. Jan. 31, 1868.

Œnanthylidene. $C_{14}H_{12}$ is obtained by E. Rubien, by heating œnanthylic chloride with twice its volume of alcoholic solution of hydrate of potassa, first under ordinary pressure, and afterwards in sealed tubes to 150°C., repeating the treatment until the greater part of the oil separating on the addition of water distils below 120°C. From this the œnanthylidene is obtained by fractional distillation. It is a colorless mobile liquid, lighter than water, boiling at 106°—108°C., but volatilizing at ordinary temperature. It burns with a luminous flame, and is soluble in alcohol, ether and benzol. Ann. Ch. Ph. cxlii, 294. Ch. N. Aug. 16, 1867.

With Br it forms the compound $C_{14}H_{12}Br_2$, and when treated with excess of Br, the compound $C_{14}H_{10}Br_4$. The latter is an oily liquid, possessing the odor of fennel. It is with difficulty soluble in alcohol, but readily in ether and benzol; it cannot be distilled without decomposition. J. p. Ch. cii, 311.

Caprylidene. $C_{16}H_{14}$, has been obtained by E. Rubien, by continued boiling of bromated caprylene ($C_{16}H_{16}Br_2$) with alcoholic potassa. It is a colorless oil, possessing the odor of leek; is soluble in alcohol, ether and benzol; lighter than water, and boils between 133° and 134°C. With Br it forms the compound $C_{16}H_{14}Br_4$, possessing a pleasant fruity odor. J. p. Ch. cii, 312.

Petroleum. The so-called surface oil from Santa Barbara County, in California, has been examined chemically by Prof. B. Silliman, who obtained 60 per cent. of light and heavy oils, and sufficient coke remained to distil this quantity. The experiments render it probable that 30 p. c. of illuminating oil can be obtained from this heavy California tar. Ch. N. Ap. 10, 1868.

Petroleum Oil may be deodorized of its sulphur compounds, according to R. Wagner, by treatment with a solution of oxide of lead in caustic soda. The disagreeable odors of the sulphur compounds may be thus removed, but it is not known how it may affect other odorous compounds.

Thionessal has, according to Fleischer, the composition of $C_{56} H_{20} S_2$, instead of $C_{52} H_{18} S_2$, as given by Laurent and Märker. The action of bromine, chlorate of potassa and chlorhydric acid, of chloride of phosphorus and sulphuric acid, and the substitution compounds or changes produced, are severally considered. Ch. N. Aug. 23, 1867.

Carburreted Hydrogen. Dr. Groth, in an article on the new methods of preparing illuminating gas, gives some valuable hints on the utilization of the residual products of its manufacture from bituminous coal. This important branch of industry has met with immense improvements, so that nearly all the available carbon and hydrogen in bituminous coal is converted into illuminating gas. See Ch. C. B. Jan. 1, 1868.

Camphor. By the reaction of melting chloride of zinc, Fittig and Köbrich and Jilke, have obtained, as products of decomposition, besides toluol, xylol, pseudocumol and laurol, *a hydrocarbon*, which they regard as probably identical with the cymol in oil of cumin as also smaller quantities of other hydrocarbons which they have been unable to isolate completely. Ann. Ch. Ph. cxlv, 129.

Oil of Turpentine. When the vapor of oil of turpentine is passed through a red hot iron tube, filled with fragments of porcelain, the products of decomposition are, according to Hlasiwetz and Hinterberger, a *gaseous body*, *carbon*, and a dark brown, oily liquid of a benzine-like odor. The gas burns like illuminating gas. 100 cc. of oil of turpentine yielded 60 cc. liquid, 16·8 cc. gaseous matter and about 2 gram. carbon. Wien. Ak. Ber., No. xlvii.

Resin. According to Skey, common resin, lac, or kauri gum, when subjected to the action of dilute NO_5 for a few hours, evaporated to near dryness, treated with strong solution of caustic alkali in excess, and then distilled, yields at first a distillate of a garlic-like odor; but subsequently the distillate passing over possesses a fragrant odor, resembling oil of peppermint and lavender. Ch. N. Sep. 3, 1868.

LIGNIN, STARCH AND SUGAR.

Lignin. Payen reviews the various processes for preparing lignin from wood, straw and other cheap materials for the manufacture of paper, in Compt. rend. t. 64, p. 1167. Ch. C. B. Jan. 4, 1868.

In this connection the author remarks that the less compact, spongy cellulose, forming the matter of ligneous encrustations, may be detached from the cells by means of acids, which convert it into glucose, capable of undergoing the alcoholic fermentation, and that then two products may be obtained from the wood of various trees, viz: alcohol, and membrane of cellulose, sufficiently strong, flexible and pure to be used in making all kinds of paper, and even of the whitest kind in the proportion of 80 p. c. Ph. J. Trans. ix, 207.

Cotton Fibre. Dr. E. Schunck, by his investigations, throws some more light on the nature of those substances which are contained in or attached to the frame work of cotton fibre, and has determined, 1, a species of vegetable wax, 2, a fatty acid, 3, two coloring matters, 4, pectic acid, 5, a trace of albuminous matter.

Glycolignose, so called by Dr. Julius Erdmann, is the ligneous portion of the wood of Pinus abies, purified by boiling in dilute acetic acid and subsequent treatment with hot water, alcohol and ether. Its composition corresponds to the formula $C_{30}H_{23}O_{21}$; it is insoluble in all ordinary solvents.

Lignose. When pine wood is boiled with chlorhydric acid, it is, according to the above author, split into grape sugar and an insoluble matter amounting to from 60 to 65 p. c., which he names as above. It is composed of $C_{18}H_{13}O_{11}$. Ann. Ch. Ph. suppl. vol. v, 228.

Starch. The purification of raw starch from wheat or rice, which usually takes several weeks for completion, can now be accomplished in a few minutes by the process of M. Maiche, who makes use of centrifugal force, by which the specifically heavier starch collects in compact masses on the sides of a copper drum, turning on its axis at the rate of 1000 to 1200 revo-

lutions per minute. The impurities remain suspended in the water, and in the proportion of 2 p. to 1 p. of raw starch. Ch. N. July, 1867. A. J. Ph. xxxix, 460.

Starches are generally assumed to be heavier than chloroform, their sp. gr. being given by various authorities at from 1·505 to 1·560. The experiment of Flückiger, however, prove that, in its ordinary state, starch is lighter than chloroform, owing to the presence of water, which frequently reaches 17 per cent. When dried at a temperature of 100°C., however, it is found specifically heavier than chloroform.

Iodide of Starch. Pellet's investigations of the cause of the decolorization of this compound by heat, and the reappearance of the color on cooling, prompt him to the following conclusions: 1. Decolorization is caused by the solution of the iodide in the excess of hot starch; the solubility being less in the cold, the color reappears on cooling. 2. Iodide of starch is decomposed at a temp. of 100°C., and iodine volatilizes. 3. It is soluble in alcohol, cold or hot, and remains unchanged in its presence. 4. It may be regarded as a salt, more soluble in certain solvents when hot than when they are cold. Bull. Soc. Ch. vii, 147. Ch. N. July 19, 1867.

Sugar. L. Pierre and R. Massey have invented and patented the following process for refining sugar. The saccharine juice, after having been clarified in the usual manner, is precipitated at a boiling temperature with caustic baryta (60 p. to 100 p. sugar); the precipitate is suspended in water and decomposed by carbonic acid. The pure solution of sugar thus obtained only requires to be evaporated. Ch. N. Feb. 7, 1868.

According to an authority in N. Jahr. Ph. xxviii, 323, sugar will not crystallize from syrups of fruit juice if about 1 p. c. of glycerine has been added.

Saccharine juices are generally treated with lime with a view to their preservation. MM. Périer Possoz, Cail & Co., have found their foreign matters contained in these juices to have undergone such changes as to impede the extraction and crystallization of the sugar, and have therefore patented a process by which the foreign matters are first removed, before adding the lime, which is added

in larger proportion than usual. One to two per cent. is employed by them instead of 0·3 to 0·5 per cent., as employed by Kuhlman. Ch. N. April 10, 1868.

Monier finds that cane sugar may be bleached by the aid of sulphurous acid without the least injury to it. Sulphurous acid gas from 4 parts of sulphur (burned for the purpose) is conducted into a chamber containing 1000 p. of sugar. The sugar is dissolved in water when the processes is completed, and the acid neutralized with 4 p. lime (or, better, saccharate of lime made from that quantity) and may then be crystallized. The process is especially applicable to highly-colored sugars, and the author finds that about three-fourths of the coloring matters contained in them are destroyed. Ch. N. May 15, 1868.

Wœlsyn's process of sugar-refining is an extremely simple operation. It consists in treating a solution of crude sugar of a certain degree Baumé, varying according to the practice of the refinery, with milk of lime, which is added in proportion to its color. After intimately mixing in the lime, a current of carbonic acid is passed into the mixture until all alkaline reaction is destroyed, at a temp. of 20° to 30°C., and the operation is terminated by ebullition to decompose any bicarbonate formed. The resulting syrup, when separated from carbonate by decantation and filtration, is found entirely deprived of color, and yields sugar of great fineness, both in regard to taste and brilliancy. Ch. N. June 5, 1868.

M. Leplay's method for effecting the separation of sugar from beet root is similar to the above. Ch. N. June 19, 1868.

M. Champonnois has introduced some modifications in the treatment of the beet root pulp, as applied to the manufacture of sugar, for which see Ch. N. June 19, 1868.

Nitroglucose. M. Carey Lea, by his researches, finds that sugar is not readily converted into nitroglucose when treated with a mixture of nitre and sulphuric acid, by which he obtained only between two and three per cent. A mixture of strong sulphuric and nitric acids, however, reacts admirably, and furnishes a satisfactory product. The admixture of some fuming SO_3 is regarded as advantageous by the author, who has found the fol-

lowing proportions to succeed best: 2 vol. fuming SO_3, 2 vol. common SO_3, and 2 vol. strong NO_5. Some difficulty has been experienced by the author, to remove the excess of acid from the nitroglucose formed; its detonating power is but slight, and it is best preserved under water. A. J. Sc. & Arts. A. D. Cir. xl. 188.

GLUCOSIDES AND ALLIED PROXIMATE PRINCIPLES.

Chrysophane, the bitter principle of rhubarb, as obtained by Kulby, is, when reduced to powder of an orange-red color, of a bitter taste, soluble in water, very soluble in dilute and somewhat less soluble in strong alcohol; insoluble in ether. Its composition corresponds to the formula $C_{32}\ H_{18}\ O_{16}$. By the action of dilute mineral acids it is split into grape sugar and chrysophanic acid. Viert. Jahr. Ph. xvii, 8.

Saponin and allied substances. Prof. Pelikan, who has instituted numerous experiments upon the physiological action of saponin, senegin and githagin (from Agrostemma Githago), suggests that these principles are worthy of renewed chemical researches. N. Rep. Ph. xvi, 110.

Sennin. The sennin described by Rau, in Viert. Jahr. Ph. xvi, 92, is, according to the experiments of Kubly, *sulphur* admixed with a trace of bitter organic matter. Under certain circumstances sulphur is precipitated from HS during its action upon organic solutions. Rau obtained his sennin by precipitating an aqueous decoction of senna with subacetate of lead, filtering the solution and treating with HS, by which a precipitate was produced, which, after drying, was digested in ether, and on spontaneous evaporation the latter yielded needle-shaped crystals. Viert. Jahr. Ph. xvii, 21.

Santoniate of Lithia. This compound is obtained, according to Frosini Merletta, by adding carbonate of lithia to a solution of santonin in alcohol of 26° (Gay Lussac), filtering and evaporating to crystallization. It forms prismatic needles. N. Jahr. Ph. xxviii, 37.

Coumarine has been obtained, by Perkin, by the action of acetic anhydride upon the hydride of salicylate of soda. Ch. N. Dec. 13, 1867.

Reinsch has obtained it from Melilotus vulgaris by a simple process. The fresh tops and leaves are powdered in a mortar with a little water and the liquid expressed, heated to 65° C. to coagulate albumen, and strained. The liquid is then evaporated to the consistence of soft extract and shaken with ether, which yields the coumarin, on evaporation, in the form of yellowish needles. It has been obtained from *Anthoxanthum odoratum* and other grasses by a similar process. N. Jahr. Ph. xxviii, 65.

Koussin, as described by Pavesi, is, according to Bedall, identical with the bitter, acrid resin found by Wittstein and the author in the flowers of Brayera anthelmintica. The process of its preparation is similar to that of santonin. In its pure state it is white, brittle, odorless; at first tasteless, but subsequently bitter and acrid; sparingly soluble in water, but freely soluble in 90 p. c. alcohol; composed of $C_{26} H_{22} O_5$. The yield, under favorable circumstances, is about 3 p. c. Viert. Jahr. Ph. xvi, 401.

Euphorbon is obtained, by Dr. Flückiger, by precipitating an aqueous solution of euphorbium, previously concentrated, with tannic acid, triturating the washed precipitate, while moist, with carbonate of lead, drying and boiling in alcohol. This, when concentrated, precipitated by water, taken up again by alcohol and filtered through animal charcoal, will yield the *euphorbon* in the form of warty masses. Euphorbon is soluble in ether, benzole, amylic alcohol, chloroform, aceton and acetic acid, insoluble in water and crystallizable. It is not affected by alkalies even when melted with them, but is changed by nitric and sulphuric acids, with which it exhibits interesting color reactions. Viert. Jahr. Ph. xvii, 89.

COLORING MATTERS.

Carmine. The following formula for its preparation is contributed by Prof. Dussance: 25 lb. powdered cochineal is boiled for twenty minutes in 250 gall. of water containing 1 lb. sal soda; 22 oz. of powdered alum is then added, and after allowing the decoction to rest three-quarters of an hour it is decanted. To the decantate 20 oz. of cream of tartar is added, stirred for

one to two minutes, and is then precipitated with 8 lb. of glue, in the form of jelly. The carmine is separated, when sufficiently settled, and drained on a strainer cloth. It is then dried on porcelain plates at a moderate temperature. A. D. Cir. xii, 70.

Alizarine is prepared from madder, by the same author, by fermenting and washing it and then pouring into four times its weight of sulphuric acid of 55° B. (which must be perfectly free from nitrous acid), carefully cooling the vessel (of lead) so as to prevent elevation of temperature. The mass is allowed to cool for three hours, diluted with 5 p. of water, filtered through powdered glass and diluted with a large excess of water, by which the alizarine is precipitated sufficiently pure for technical purposes. Ibid.

Bixin, in an impure condition, is prepared, by Stein, from anatto, by treatment with water, to separate bitter principle, grape sugar, &c., then with benzine, to separate fatty matter, and finally with solution of caustic alkali, from which it is precipitated by acid. *Pure bixin* is turned deep blue by sulphuric acid, but changes, after long contact, to brown-green; nitric acid causes the same reactions, but the change to brown and green is more rapid, and it is finally turned yellow. Stein's analysis of bixin differs considerably from that of Bolley. A. D. Cir. xii. Ch. C. B. cii, 175.

Orcin. V. de Luyes and A. Lionel have obtained a number of compounds of orcin with the alcohol radicals of methyl, ethyl and amyl, in which one equivalent of H of the orcin is substituted by 1 eq. of the radical. These compounds are produced by the action of a mixture of potassa and the iodide of the radical with which it is desirable to operate, upon the orcin (crystallized) and applying an appropriate temperature. Compounds have also been obtained in which 2 and 3 eq. of the H of the orcin are substituted by the proportionate equivalents of these alcohol radicals. Ann. Ch. Ph. cxlv, 64.

Resorcin, Orcin and Phloroglucin, in aqueous solution, dissolve iodine in considerable quantities, according to Hlasiwetz, forming colorless solutions, although they do not contain free hydriodic acid. Neither is starch paste colored thereby, and the author

therefore concludes that exceedingly unstable compounds are formed, as, by simple evaporation, these substances crystallize out and iodine is sublimed. Ch. C. B. July 3, 1867.

Quercetin. Rochleder has obtained this coloring matter from apple-tree bark, and states that it is freely soluble in alcohol and ether, and nearly entirely soluble in water. From its solution in boiling acetic acid it crystallizes in small, shining crystals. By the action of melting alkali it is converted into phloroglucin and quercetinic acid. Ch. C. B. Aug. 7, 1867.

Brazilin, $C_{44} H_{20} O_{14}$, as prepared by Geigy from Brazil wood, has been the subject of investigation by Schönbein. It furnishes yellow crystals, forming a sulphur-yellow powder, which remains unchanged in the dark, but becomes rapidly reddened when exposed to direct light. The unchanged brazilin is sparingly soluble in water, forming a sweetish, colorless solution, which is not changed by acids, but reddened by alkalies or on long exposure to air. It is more freely soluble in alcohol and ether. J. p. Ch. cii, 167.

Polychroit, according to Weiss, is best prepared by depriving saffron of its fatty, waxy and oily constituents by ether, subsequently digesting the residue with water, precipitating the concentrated solution by absolute alcohol, and the filtered alcoholic solution by ether, by which the coloring matter is obtained in the form of a handsome, orange-red, perfectly translucent, horn-like mass. It is exceedingly hygroscopic, freely soluble in water and dilute alcohol, but sparingly soluble in absolute alcohol. By the action of dilute mineral acids it is converted into two secondary coloring matters, sugar and volatile oil. Its composition corresponds to the formula $C_{56} H_{80} O_{36}$. Ch. C. B. Jan. 22, 1868.

Luteoline. Rochleder has instituted a number of experiments on this coloring matter, in order to determine its combining number, and finds its composition to correspond to $C_{40} H_{14} O_{16}$. Ch. C. B. Oct. 5, 1867.

FERMENTS.

The researches of Mialhe on the preservation of ferments lead him to the conclusion that, when they are suitably dried, they

will retain their activity indefinitely. These results are confirmatory to the assertion of Rouchoux relative to the activity of dry vaccine lymph, and Mangili relative to the dried poison of serpents. Ch. N. July 3, 1868.

Yeast. Reinsch states that by putrefactive fermentation yeast is converted into *chenopodina*. N. Jahr. Ph. xxviii, 65.

Dr. J. Oser states that the products of fermentation of pure cane sugar and cake yeast contain an alkaloid containing carbon, hydrogen and nitrogen. He has determined that it does not pre-exist in the yeast, that it must therefore be a product of fermentation, and, consequently, present in all liquids that have undergone alcoholic fermentation. Wien. Ak. Ber. No. xxv, 1867.

PROTEINE COMPOUNDS.

Albumen. The assertion of Lightfoot that albumen is precipitated by camphor is, according to Monoyer, erroneous. The precipitate which occurs in albumen ovi is owing to membrane present, and will occur even in the absence of camphor; serum of albumen is not precipitated.

Albumen is best dried in flat vessels, which should not contain a layer more than one-eigth of an inch deep, in a strong draft, and at a temperature of 35 to 42° C. While a good article of albumen can be obtained from blood, this is not applicable to delicate colors (in photography), for which albumen ovi alone can be used. Ch. C. B. Aug. 14, 1867.

Albumen and Fibrine. The experiments of Dr. Gunning indicate that *fibrine*, when exposed to air free from dust, undergoes no change when kept for five years. *Albumen*, under the same conditions, will change, but the change is entirely distinctive from that occurring under ordinary circumstances. No infusoria or mouldiness is observed in its solution, which becomes colored yellow and turbid. The sulphur is converted into sulphuric acid and not sulphuretted hydrogen. Ch. N. July 3, 1868.

Albumenoids. According to Frœhde, the albumenoids, when treated in the solid state with sulphuric acid containing molybdic

acid, become colored intensely blue. The sections of *seeds*, and especially of *grain*, show this reaction most completely. Certain reagents prevent the production of this blue color. Ann. Ch. Ph. cxlv, 376.

Blood. Dr. Richardson, in a communication to the British Association, withdraws his *ammonia theory* of coagulation. Some recent experiments, which he had made on the influence of heat and cold on albuminous and fibrinous fluids, have shown him that the process of coagulation in these fluids is due to the communication of caloric force to them, and to a physical or molecular change determined by the condition of their constituent water. He further stated, that in the ordinary condition there is a constant process similar to crystallization progressing in the living body, in the formation or construction of muscle, and a steady and persistent change of force from those parts which are solidified by cold and fluidified by heat, to those which are rendered solid by heat. Lond. Lanc. Dent. Cosmos. ix, No. 4, p. 216.

VEGETABLE CHEMISTRY.

Formation of cellular tissue in the spiral vessels of plants. The theory of J. Schleiden, "that the formation of cellular tissue in the spiral vessels of plants is not caused by the substance which deposits in them, but by the surrounding cells," has lately been disputed by Prof. J. Böhm. Prof. Unger has more recently investigated the subject, and proves the correctness of Schleiden's view; and describes and illustrates the manner in which the adjacent cells grow into the spiral vessels. He agrees, however, with Böhm, that the action of air, and especially of oxygen, gives the incentive to this cellular growth. Wien. Ak. Ber. No. 25, 1867.

Formation of rootlets in willow saplings. J. Böhm has determined that willow saplings, deprived of a portion of the bark in the form of a ring, will form roots when placed in water

in such manner that the portion below the ring is freely exposed to light, while when that portion remains in the dark no rootlets are formed. He was lead to these results by the fact that oxygen is an imperative necessity to the new formation and growth of the organs of plants; and this is obtained through the agency of green bark, which in the presence of direct light decomposes CO_2 with liberation of O. Wien. Ak. Ber. No. 23, 1867.

Formation of the roots of vegetables. It has long been known that roots possessed the property of absorbing CO_2. Corwinder proves, by his experience, that if these organs are put in communication with a certain proportion of this acid, it is found that the quantity present in the root is greater than that which has been supplied.

Nitrogenous nourishment of Plants. Experiments have been made, by Wolf and Knop, upon rye, with a view to determine whether leucin, tyrosine, glycocoll, coffein, quinia, morphia, asparagin and hippuric acid were capable of affording nourishment to the plant in the presence of various salts, such as $KO\ SO_3$, KCl, CaCl, $3CaO\ PO_5$, $MgO\ SO_3$ and $Fe_2\ O_3\ PO_5$. The result with the alkaloids and hippuric acid were in the negative, while leucin, tyrosine and glycocoll appeared to exercise a favorable influence, but in no instance did the plant flower or bear fruit. Arch. Ph. Jan. and Feb., 1868, 161.

Submitting this report, the Chairman desires to state that a few errors in classification have unavoidably crept into it, which will perhaps be excused on the plea of necessarily limited time to the classification of matter of so much volume and variety.

C. LEWIS DIEHL,

Chairman.

REPORT OF THE COMMITTEE ON THE DRUG MARKET,

(For the fiscal year ending June 30th, 1868.)

The American Pharmaceutical Association, at its last annual meeting held in New York, in September, 1867, selected five persons from five different commercial cities, as a Committee on the Drug Market; and we have to report that it has appeared to us that the selection of a committee of persons engaged in the active prosecution of business in different and distinct localities, did not imply that much concert of action or consultation among the individual members was expected, but more especially a general observation of the current of business from year to year, with such practical suggestions as the course of trade throughout the country might demand, for the promotion and elevation of the profession of the Pharmacist and the pursuit of the Druggist—in brief, our work as a Committee has been assumed to be statistical and suggestive, and we have concluded that the best interests of this Association would be promoted by placing all the individual members of the Committee, as far as possible, in an independent position, in order that personal observation and responsibility might be secured with more candid expressions of opinion upon all matters of interest to each and to the Association as the result of the experience of the passing year for each particular district, while the Chair, which was accorded to New York in courtesy by the Association at its last meeting, will report for the city of New York in particular, and for the trade in general.

1. THE SCOPE OF THE DRUG BUSINESS.

Our predecessors, in their report for the fiscal year which terminated June 30th, 1867, in undertaking their duties, express some embarrassment, because, unlike all the other Standing Committees, who have specified duties assigned them, no mention whatever is made of the duties of the Committee on the Drug Market, and they say that, in the absence of instructions,

they have concluded to take cognizance chiefly of products pertaining to Pharmacy, and eschew notice of collateral matters in the general drug trade, such as paints, dye stuffs, etc., etc. It appears to us that the condition of the drug business, in our country in particular, and in almost all countries, is so undefined, so elementary, that any attempt at this time to comprise the business within specified limits, or to draw a line of separation, including articles pertaining solely to Pharmacy in a class, will prove a failure. We have a striking example of this in the tabular schedule of imports, etc., as presented by the various members of this Committee in connection with their report. Baltimore and Philadelphia made returns for the year 1866 only, and New York and Boston for the fiscal year ended June 30th, 1867. All these four schedules have various discrepancies, and in no one of them is any rule of selection of articles apparent. Tried by the standard of the British and American Pharmacopœias, the Philadelphia list, which is the best selected and best arranged, has (3) three per cent. of articles in it not recognized as officinal, and the Baltimore list has (33) thirty-three per cent.; while New York includes in hers (35) thirty-five per cent., and Boston, (59) fifty-nine per cent. of various articles not recognized in any of our Pharmacopœias. It will be noted that Philadelphia adheres very closely to her own "Wood and Bache," while the standard of the other commercial cities of the Union is a less determined one.

The drug business is the most undefined of any. There is no definition of the word Drug that will meet with general acceptance. This term implied originally any dry substance, but it has come to include in the trade all crude products of nature of all kinds that are of value for the purpose of medicine, or for use in the prosecution of the various arts. It is said the term Drug applies especially *to all* commodities that are slow of sale, and for which there is little demand in the market. All the spices are drugs; common pepper was a drug until it came into general use, when it was classed, in commercial lists and in tariffs for revenue, among the spices as a particular variety.

Pharmacy is also an undefined term, at least there is no definition for it that is universally accepted. It is said to be the art of preparing, preserving and compounding substances for the purposes of

medicine, as also to be the art of an apothecary, which last is an English word with a different significance in Great Britain to any we attach to it in America. In England the licensed apothecary is a small shop-keeper or dealer in drugs and druggists' articles, and a chemist and pharmacist, within the necessities of his business, and as a special requirement, before he can proclaim himself an apothecary, he must receive a license, as a person competent to prescribe medicines and practice surgery to a limited extent; while in our country the apothecary is understood to be only a retail dealer in drugs, and not of necessity a chemist or a pharmacist, and as a rule the practice of medicine and surgery among the poorer classes, which fills so important a place in English society, and which is encouraged to a considerable extent by the medical profession of that country, is discouraged with us and rarely pursued in connection with business—a difference of usage in the two countries that has a very important influence in checking the trade in secret remedies, which will be discussed hereafter. There is in our country an increasing disposition to drop the word apothecary, or use it only in connection with the dealer's shop, and employ the word pharmacy as a comprehensive term for all the knowledge and art of all preparations and combinations of articles pertaining to the drug business. The two words, "druggist and pharmacist," will probably come into general use in time, the one as the most fitting term for all dealers in drugs and druggists' articles, and the other as the only word, unless we invent some new one, that can include a knowledge of combination of all kinds, chemical, and what we call compatible combination, for the want of a more precise term, the first implying a knowledge of the laws of chemical affinity, and the last, a knowledge of those controlling forces which crude material substances exert over each other in determining combinations. A good chemist may not understand pharmacy, but an accomplished pharmacist must understand chemistry, and hence, while we cannot define pharmacy as we can chemistry, we must accord it a superior position, from the fact that the greater includes the less. And we may add that any limitation of pharmacy, as an art or science, to medicinal agents solely, is unwise. The lean and half-starved apothecary of Shakspeare's time was

devoted to curatives, to medicinal agents, and we know the estimation in which he stood was as inferior to that of the druggist and pharmacist of to-day, as that Alchemy of old was in usefulness and in general estimation to modern chemistry.

Medical men, men of professional education, are largely represented with us in business pursuits, and this class of persons, whose regard for professional limitations is well known, frequently express their regret that the drug business is so universal, and they think that the dignity of both, and especially of pharmacy, would be promoted by confining it to medicinal purposes, which, however, is an error, for pharmacy, restricted to medicinal agents, to specifics, would naturally tend toward that empiricism which the medical profession abhors. The empiric and his cure were always in company, and the most empirical of all the systems or schools, as they are called, of medical practice are those which profess to have some unfailing law or means of cure; the lowest conception of medication, as an art or science, is that ancient one, which contented itself with specifics, with the cure of diseases; for the race has a deal more interest in whatever promotes life, and health, and all proper development, than in all the specifics ever employed. Pharmacy is considered to be a profession, a science, and it is charged that regard for utility, material consideration and want of respect for professional attainments, distinguish our time from all the past; but this is only true in part. There is in our country a want of respect for most of the professions, because they are not properly filled, and our time is not so remarkable for its devotion to material interest as for its superior knowledge of material forces, for its inventions, its many mechanical appliances, and the wonder should be, not that we are so much, but that we are not entirely, absorbed with all these recent revelations of force and skill, *these gifts*, which are the treasured toys that came but yesterday, of our Father's bounty. All the best tendencies of our time, in contrast with the past, are in favor of the physician and the pharmacist. The humane spirit of modern Christian teaching takes regard of life in all its various forms, as a sacred obligation:—"Consider the lilies," "Not a sparrow falls," "Inasmuch as ye have done it unto the least of these," etc.—while,

from the stand-point of older civilizations, we know that the truth and sense of the Spartan estimate—"A puny life is scarcely worth preserving,"—and the wisdom of the old Hebrew regulation, which exiled the infirm and incurable from the healthy and vigorous, can hardly be questioned.

There are two sides to every question, and two forces in every thing, and this exaltation of the *medicinal* in our business, as opposed to the *technical*, deserves the highest regard, for it is the outgrowth of the Christ-like civilization of our age. But we must remember that it is not good for us to be forever in the chamber of suffering, or always attendant on death; no constitution can endure it and no pursuit can stand it; we *must* renovate ourselves, *must* fill our empty shelves; the apothecaries in our cities *must* go out anew into life and catch the beat of its pulse forever renewed, and fill themselves (their empty shelves) with all the light of the day, take a look at the ocean of life and feel the breath of its sea.

What we most want is a juster estimate of ourselves, of our resources, of our obligations; and the true policy of the druggist and pharmacist is, to make his pursuit or his profession as useful as possible in all ways. We do not want less range, but more education, more character, because in our pursuit, more than in any other, there is a demand for character in the individual, for quality in the article, and for a better standard of morals in trade, than the current one—"The more ignorant the public can be kept, the better opportunity there will be for profit, for deception." The druggist store everywhere, and especially wherever connected with or recognized by some respectable organization like ours, should be a place for public advice, for correct information about all articles in daily use, and care should be taken to reverse the current opinion—that we are in the habit of making exorbitant charges for all the common necessities of life.

2.—CLASSIFICATION OF ARTICLES IN THE DRUG MARKET.

We have in the drug trade, as it is conducted in the United States, a greater variety of articles than in any other business, and yet there is no recognized plan of classification of com-

modities that we know of. When we consider that classification in scientific pursuits is what organization is in business industry, the very first step to be taken on the way of progress, we can estimate the importance of this subject. The most usual of all plans of classification is a simple alphabetical arrangement of articles; and it may be said that the merit of any plan of classification or organization consists in the utmost simplicity, with some particular purpose in view. We have an alphabetical list of scientific terms in use in our dispensatories, as "acacia, camphora, guaiacum," etc., which all our best Pharmacists recommend for Druggists' catalogues, to avoid the custom, or impropriety, in a professional point of view, of placing a pure gum, a vegetable principle and a resin within a single heading, under the usual classification of gum; but the list of the Materia Medica is limited, and generic or scientific terms will answer very well in the apothecaries' shops and in scientific treatises, although they are quite inadequate for all the needs of business. Our English language is ill adapted for alphabetical classification, as it is mainly derived from two sources—the sources of the German and French tongues, the first of which, in usual speech, places the adjective or qualifying word before the substantive noun, while the last follows the Latin usage of giving the substantive the precedence; and we follow both by turns when we say "gum arabic, oil of peppermint, senna leaves, olive oil, balsam of Peru," etc. In taking up an English or American commercial list, one never knows whether to refer to the substantive or adjective word, and there is in almost all of these more or less want of arrangement, mingled with a blending of different parts of speech and of English and Latin headings.

From the fact that our list of scientific terms is inadequate for commercial purposes, for the Drug business, as it is conducted in our country, we should take care to cultivate and give shape and preference to our own Anglo-Saxon tongue, which is specially the language of commerce, and which is to be, as we believe, the universal speech. We should use seed for semen, leaves for folia, etc.; and in any alphabetical arrangement the substantive word should have precedence, as this plan brings together, in crude products, all the roots, barks, leaves, flowers,

gums, balsams, oils, etc., beside being equally useful in arranging chemical preparations and manufactured articles under proper headings. Our Washington statisticians and Custom House officials assure us that they have more trouble with drugs, in arranging their statistical tables, than with all other goods. Our American tariff list is of course the government guide and basis of statistics, and it is a perfect jumble, in so far as the drug business is concerned, of the most obsolete and most common terms in almost every possible connection, with repetitions of the same article under various and some curious names. Our tabular schedules of imports and exports of Drugs and Druggists' articles will never be as valuable and reliable as they should be, until we can, in some way, secure in our government offices a better classification of commodities. Quillaya bark, of which it appears five dollars' worth was imported in 1866, is accorded a full line in our statistics, while gums arabic, gedda, myrrh and senegal are all comprised in one, with other inconsistencies not necessary to mention.

For the reason of the precedence of the substantive word in common speech, the French language is very superior to either the English or German as a medium of classification, and when we add to this advantage that remarkable mind which has planned a universal system of weights, of measures and of coinage, we may look to the French as the only people who have as yet successfully classified the commodities of business. The French, in their tariffs and statistical tables, divide all materials of all kinds into two great classes. First, the products of nature or crudes; and second, the products of art or fabrications. All the crude products of nature are subdivided into three classes, upon the basis of the three kingdoms of nature, as animal, vegetable and mineral materials. Our business is represented under fabrications or products of art, in two divisions, called chemical products and manufactured articles, and these are in turn subdivided and properly classed. In animal substances they have a class of materials that are proper for medicine and for perfumery, and in vegetable materials there is a class called medicinal specialties and another for dyes, tannins, etc. Almost all Drugs are vegetable substances, and there is a very

interesting French heading called "sucs or juices," which follows roots, barks, leaves, flowers, seeds, etc. This list of sucs or juices includes, first, all the pure gums by themselves, followed by the indigenous resins, and these, by the exotic resins, which are followed by the balsams, among which are included the liquid resins, without reference to benzoic or cinnamic acids. Fixed oils follow the balsams, and next in turn aromatic oils or essences, and the list closes with what are called specialties: camphor, caoutchouc, gutta-percha, manna, aloes, opium and all other dried vegetable sucs or juices.

The superiority of the French language over ours as a medium of classification will be recognized, when we consider the fact that in our familiar English speech we use the single word "gum" as a general term for most vegetable secretions, as "gum arabic, gum camphor, gum guaiac, gum opium," etc. For commercial statistics for government purposes there is no classification of commodities as good as the French, because theirs is the only one that will admit of universal application, and we propose to submit our tabular schedules of imports and exports in accordance with the same, for the reason that this plan divides, very properly, all crude substances—all the products of nature—from chemical preparations and manufactured articles—products of art—in regard to which we have, by this classification of the tariff in the Revenue Department, ascertained important facts. We hope this arrangement will be approved.

We may add, the tendency in Europe in the drug trade is towards a more general use of scientific terms, because they are more definite and they constitute a common language among different nations; but we have not been able to find a single commercial list, in all our European correspondence, that is arranged on any well-defined plan. Messrs. Gehe & Co., of Dresden, in Saxony, publish one of the best mercantile catalogues on the Continent, in which they use scientific terms for all crude Drugs, Chemicals and Pharmaceutical preparations, which are arranged separately in two divisions; while *Homœopathic Medicines, specialties, druggists' implements of all kinds and toilet and miscellaneous articles* are quoted in German. Our English language has but few fixed rules, and for this reason it

is more capable of enlargement than any other; and in consideration of the fact that, in time, it is surely to be the language of all the American continent, and that scientific terms are the only definite ones, we should encourage the use of these, under English forms, in business transactions, to the exclusion of all fancy names, as sanguinaria in place of blood-root, etc.; and we should bear in mind that there can be no *permanent* or *perfect* plan of classification that does not recognize nature as a basis; and in any alphabetical arrangement of articles we should always give precedence to substantive words.

TRADE—FOREIGN AND DOMESTIC.

We have been unable to obtain any authorized statistics of the imports and exports for the past fiscal year, for the reason that there are some one hundred and twenty custom houses within our Union, and full returns cannot be received from all of these before the 1st of October or November, which will be in time for publication, when we hope to be able to furnish them as desired.

Through favor of the Director of the Statistical Bureau, at Washington, we have been furnished with full reports of all the imports for the fiscal year ended June 30th, 1867, which we have arranged for publication in schedules, giving the quantity, value, rate of duty of each article, as also the revenue received by the government. We are assured, in the Statistical Department at Washington, that a better classification of all commodities, and especially of drugs, is much wanted, and this matter should be attended to at the very first opportunity that may present itself, for that revision of the list of the tariff which is much needed. The government statistics show that all imported drugs, &c., pay the enormous average duty of over forty per cent.

The average tax on all crude drugs is thirty-five per cent., chemical products of all kinds pay thirty-four ($\frac{4}{11}$) per cent., and druggists' manufactured articles, seventy-five ($\frac{3}{4}$) per cent. In all Europe the custom tax on the same crudes does not exceed an average of two and one-half per cent. In Great Britain every thing is free except a few table luxuries, in France the average tax is very general, but does not exceed two and one-half per

cent., and in the States of the German "Zollverein" it is less than two per cent. Under these circumstances trade in drugs, etc., with foreign States, to any large extent, cannot be expected.

The importations of drugs and druggists' articles of all sorts from foreign countries into the States and Territories of the American Union, during the fiscal year ended June 30th, 1867, were as follows:—

Animal materials, . .	1,167,455	Dollars.
Vegetable materials, . .	13,521,063	"
Mineral materials, . .	1,020,522	"
Total gold value, . . .	15,709,040	Dollars,

at the place of exportation, *of crude products of nature.*

And of the products of art, as follows:—

Chemical preparations, .	8,699,573	Dollars.
Manufactured articles, .	4,076,619	"
Total gold value, . . .	12,776,192	Dollars,

at the place of exportation, making a total of imports of all sorts of 28,485,232 dollars in gold value, at the place of export, to which should be added an average duty of about (40 $\frac{9}{10}$) forty and nine-tenths per cent., which netted the Government 11,603,970 dollars, and costs, charges and exchange on imports at least 12½ per cent., with a premium beyond currency of about (40) forty per cent., making the total value of imports of drugs and druggists' articles of all kinds *in currency*, as follows:

Total gold value of imports, .	28,485,232	Dollars.
Custom house duties, . .	11,603,970	"
Costs, charges, exchange and other expenses, 12½ p. c. (on the original cost 28,485,232),	3,560,654	"
40 per cent. average premium on during the fiscal year, . .	17,459,942	"
Total currency value in port for consumption, ...	61,109,798	Dollars.

The re-exports of drugs and druggists' articles, the produce, growth and manufacture of foreign countries from the United States, for the same period, as per tabular schedules, (arranged in

table of imports) in all, of all sorts, were 1,129,222 dollars in gold, and the export of drugs and druggists' articles, the growth, produce and manufacture of the United States, was in currency value 38,178,773 dollars, as per alphabetical schedule of articles annexed, of which amount the main items are petroleum, ashes, beeswax and other natural products of the country.

Our export of petroleum was,

Of crude, 7,344,248 gallons, valued at 1,864,001 dollars.
" refined, 62,125,561 do. " " 22,267,183 "
" benzine, 224,576 do. " " 34,175 "

Making a total of 69,694,385 gallons, at currency value of 24,165,359 dollars, and the total export of assorted drugs and medicines from the Union to all foreign States, was only 1,382,070 dollars in currency, which is a very small amount, and an evidence of the injurious effects of our present prohibitory tariff.

The civilized population of the continent of America and contiguous islands without our Union is estimated to be 40 millions, for all of whom the United States is the natural market for supplies of all sorts, and our trade in drugs with these States, once one of the most valuable we had, is reduced to a small amount—is mainly confined to a single house in the city of New York, which is largely interested in specialities of manufacture or proprietary articles, adapted to the South American and West India markets.

Through correspondence with various foreign countries, we have received reports of the condition of the drug markets without our country, as also of the present condition and supply of the most important articles, which will be submitted for approval for publication with other papers. The market reports that reach us from Leipsic and Dresden, in the little kingdom of Saxony, which was always famous for its intellectual activity, are very interesting. Those of Messrs. Heine & Co., in Leipsic, in regard to essential oils, and of Messrs. Gehe & Co., of Dresden, in particular, are models in their way; they are brief and exhaustive.*

* Ludwig Franz Gehe, the founder of the house of Gehe & Co., of Dresden, in Saxony, is one of the most remarkable men in the drug trade, and he has filled very responsible situations in directing and advising the

As far as we can learn, the quality of imported medicinal drugs, for the past fiscal year has been in the main very satisfactory. The Examiner of Drugs for the port of New York reports the following rejections for want of strength and purity, samples of which have been retained:

Centaury minor,	1 bale.	Root, rhapontica,	1 bale.
Bark, Peruvian,	235 "	(not admissible by law.)	
Leaves, buchu,	1 "	" rhubarb, E. I.,	58 cases
" poppy,	1 "	" " English,	1 "
" senna,	9 "	" " French,	1 "
Root, ipecac,	5 pge's.	" sarsaparilla,	140 bales
" jalap,	33 "	" valerian,	3 "
" levisticum,	1 bale.	Sugar of milk,	2 casks
" licorice,	22 "	(damaged and impure,)	

all of which are vegetable products, except sugar of milk.

We are informed by the Commissioner of Internal Revenue for the City of New York, that the trade in drugs and druggists' articles with the interior, in amount of sales since the close of the war, considering the reaction of prices attending a large decline in gold, and the loss of most of our foreign trade through the recent tariff acts, has been better sustained than any other business in the City of New York. In the fiscal year ended June 30th, 1867, there was a decrease in the total amount of sales, as compared with the preceding year, of (20) twenty per cent.; and in the past fiscal year there has been a further decrease of (3) three per cent. But when we consider that during the war there was a deal of speculation, consequent upon fluctuations in the value of gold, and that for the last two years there has been a declining market and very little specula-

commercial policy of his country. Mr. Gehe has always been a zealous advocate of the most liberal commercial policy in the Zollverein, and is a warm admirer of the free principles which are the base of our institutions. Born in the year 1810, he entered the drug business in 1824 as an apprentice in the house of Brückner, Lampe & Co., in Leipsic, the principal commercial city of Saxony. He established himself in the drug business in Dresden in 1834, and has managed, by application and ability, to obtain a most extensive reputation as a leading mind in the trade, as a man of research, of broad views and correct principles, with great capacity for business affairs.

tion in goods, it would seem that there has been an increase in the bulk of goods sold for interior consumption, which can be accounted for by the fact that the close of the war restored the Southern States to our markets; and these States, although industry is depressed and society disorganized, and they have had to meet since the war heavy misfortunes, including failures of crops and low prices for products, require and have purchased a large amount of necessary goods. When we can restore the Southern States to something like their former prosperity, and remove the shackles which fetter commerce and navigation, we may, with the opening of intercourse with the Pacific and with all foreign countries, see the beginning of a period which is sure to make our country what it is designed to be—the natural centre of trade—the great market of the world for commercial exchanges of all kinds.

USAGES AND LAWS PERTAINING TO THE DRUG BUSINESS.

Oil of castor beans, in different temperatures and at different seasons of the year, will weigh from (7½) seven and one-half pounds to (8¼) eight and one-quarter pounds avoirdupois to the gallon, and as this article is at present a monopoly in the hands of less than half-a-dozen manufacturers, from the fact that, while it can be imported for less than one dollar per gallon, free of duty, it is subject to a duty of one dollar per gallon, and if not imported direct, ten per cent. *ad valorem* additional in gold, and castor beans are only subject to a duty of 60 cents per bushel, which is less than 40 cents a gallon for the oil in the beans. The manufacturers having obtained from Congress a tariff that prohibits the importation of the oil, under the pretence that it is desirable in our country to promote the cultivation of the beans, undertook, in January last, to establish as usage 7½ lbs. weight as a gallon in place of 8 lbs. as heretofore, but the attempt did not prove successful, and this article is now sold entirely in large lots by the pound weight, which is an improvement that should be extended to oils and balsams of all kinds.

A very singular practice is recognized in dealing in balsam of copaiva in original packages. The usage is to gauge the number

of gallons and bill this article at 8 lbs. to the gallon, regardless of the actual weight, which is usually about 7½ lbs. to the gallon. Venice turpentine is sold in original packages at ten per cent. tare, when the usual weight of the same is rarely less than 15 p. c. Almost all the usages of business and allowances for tares, etc., which exist, favor the importer and package dealer or manufacturer to the injury of the jobber and retailer, for the reason, that there is a lack of organization among the many in the trade for the correction of abuses in general.

The yearly charge for an apothecary's license is ten dollars, and for a retail liquor dealer's, twenty dollars, and as all our apothecaries are compelled to keep spirits in some form, and the decision of the revenue department is that the greater includes the less, our apothecaries generally take out licenses as retail liquor dealers only, which includes the right to deal in drugs and druggists' articles; and our wholsale druggists, for the same reason, take out licenses as wholesale liquor dealers and save fifty dollars under the same ruling. The form of this thing may not be of much consequence, but we should prefer to have the respectable pursuit of the druggist *fairly* recognized in the laws of the country, in place of being mixed up with a class of dealers which, as a whole, have never been considered very respectable. Quite recently, in July, an act was passed by which wholesale dealers in liquor in any form are obliged to exhibit a conspicuous sign, with letters of not less than three inches in length, to show that they are wholesale dealers in liquors.

The tax of 5 per cent. on manufactures of all kinds, which includes chemical and pharmaceutical preparations, has been repealed by the XLth Congress, which, although made in the interest of a single class that for the time preponderates in our legislation, is a move in the right direction towards unrestricted industry and trade.

The excise on spirits has also been reduced from two dollars to about sixty cents per proof gallon, after an exciting contest in which large interests were involved. The motive assigned for this change, that it has been found impossible to collect two dollars per gallon, is a humiliating confession for a government

like ours. We trust the authorities will have better success in collecting the reduced tax.

Our custom tariffs will also, it is thought, be altered in the interest of a few manufacturers of special products, as considerable progress has been made towards passing a bill which imposes one cent per pound on sal soda in place of half a cent, and four and a half cents per pound on chromate and bichromate of potash in place of three cents, and two and one-half cents per pound on oxide of zinc in place of one and three-quarters; and it is proposed to reduce the rate on cork-wood from thirty to ten per cent. ad valorem, and add all the quinine barks, which now pay twenty per cent., and chlorinated lime, which pays thirty per cent., to the free list. The English tariff, which represents the most commerce on the globe, is published in a little book about two and a half by three and a half inches, in a form suitable for the vest pocket, and contains in all but fifty-five dutiable headings, all of which, but two, are luxuries. In Great Britain duties are levied solely for the purpose of revenue. The French tariff is skilfully arranged upon a scientific basis with an alphabetical list of all articles. The tariff of the German "Zollverein" States has a complete alphabetical list of all articles, which are divided into forty-three classes, each of which is a business specialty. Our customs tariff act is a strange medley of pretty much all sorts of things but ideas, without any classification of articles, except a sort of alphabetical arrangement, in which substantive and adjective words take precedence by turns, with no regard for the needs of business or scientific aims or any general policy that can be discerned. Our tariff list is the product of partial and hasty legislation made in the interest of a few particular individuals from time to time, and it is in all respects—as a work of art or as the product of a people whose boast has been their commercial enterprise and commercial character—*discreditable.*

The American tariff is specially remarkable for the prominence it gives to drugs. Out of 2880 headings of articles and classes of articles which it enumerates, 955 are comprised in the drug trade. The list begins and ends with drugs; it opens with "absinthe and acacia," and ends with "zinc valerianate," with

"chemical" affixed, as an explanatory term, in parenthesis. Crude drugs, which are all necessities for the purposes of medicine, or for the prosecution of the various arts, and which should be admitted free for the reason that they are necessities, and because they are, by design of Providence, mostly the special product of particular countries within very limited districts, are taxed higher than chemical preparations. The Materia Medica of the civilized world *is one*, and these articles have, by reason of the fact of their production within limited districts, and their universal demand in all countries, a far greater importance as leading articles in promoting foreign trade and commercial intercourse than any other of equal value. The oldest writings in our possession tell us of the trade in the drugs and spices of the east; from the remotest ages of commerce the trade of tropical countries has been a principal source of riches to the commercial nations. To secure the trade of the Indies was the great object of national enterprise of past centuries, and we have the Indies at our doors, with 40 millions of people attached to us in many ways as continental neighbors with similar institutions and wants, for the wants of all new countries are similar.

We are deliberately closing our ports and making intercourse, to any extent, impossible. We are driving the trade of our continent to Europe, and losing that good will which is well understood to be the most valuable of all mercantile capital. There is, we suppose, as much intelligence in the drug trade as in any other business pursuit, but there is less public spirit and devotion to public affairs than in most, from the fact that our most capable men are, more than in any other pursuit, absorbed in that immense detail which is inseparable from the business, as also that, from the nature of their education, our most intelligent men are more inclined to scientific than political pursuits. We must bear in mind, however, that the theory of our government is self-government, and if we omit to govern ourselves or look after our own interests, as a class, in the legislation of the nation, we should not complain. Unwise and unjust laws demoralize a people. The practice of smuggling and dealing in contraband goods increase yearly, and will increase. An examination of

the statistical tables of our yearly imports proves that a large amount of our most valuable goods are constantly introduced and sold without the knowledge of the government, to the injury of the honest trader and to the detriment of all. Very little musk pays any duty; many valuable essential oils never see the Custom House, and opium, one of the most important articles in the trade, is constantly introduced and sold at all sorts of prices. This article in our tariff is subject to a gold duty of $2.50 per pound, while in England it is admitted free, in France it pays a tax of 18 cents per pound, in the "Zollverein" of the German States the duty is 32 cents per pound, and in partly civilized Russia, a country that makes no pretence of commercial importance or of any decided commercial policy, the tax is only 22 cents per pound. Opium is smuggled and sold all over the country, and it may be inquired, does the government expect any different result, after its admitted failure to collect the last excise on spirits?

We propose to submit for publication, with other papers, a comparative table of custom duties on crude imported drugs in the various commercial States of Europe, for the purpose of instructing our legislators, if such a thing is possible. There are various opinions in regard to the value of *our present Examiner's law* for the inspection of imported medicinal drugs. It is generally conceded that the present act has done good service in the past in educating the public to a better appreciation of quality, for which there has always been in crude goods—in vegetable products in particular—less regard in our country than in any other; all merit is comparative, and an article is good or better, according to some known standard. The present act is a constant assertion before the public of the fact of quality, and it has without doubt saved us from the consumption of a deal of trash, the refuse of more intelligent markets than ours. On the other hand, this law is objectionable in the fact that there can be no standard for all those crude vegetable products which comprise the bulk of our medicinal imports, and since there has never been a time when supplies of inferior articles, in general demand, as Peruvian barks, rhubarb, etc., have not entered the country through some channel, there is no doubt that the present

law has been a detriment to the commercial interest of the country; it has discouraged direct consignments through the usual channels of trade, and has made us more dependent upon the European markets for supplies of many kinds of desirable goods, for commerce will shun any market that is subject in any way to individual caprices. It is a significant fact that no such law exists in any commercial country but ours. There is in other countries no censorship of quality; worthless and damaged goods *alone* are rejected by law. There is no doubt the present act for the appointment of special Examiners, etc., will be, as it should be, sooner or later repealed or amended.*

SECRET REMEDIES.

On account of recent decisions in our courts of law in favor of proprietary rights in secret remedies, or patent medicines, as they are improperly called, some kind of legislation is required for public protection against this class of articles, as they have rapidly increased in number and importance, within a few years, as articles of commerce. The market list of secret proprietary preparations in use in our country far exceeds, in number of articles, that of the list of officinals in all our Materia Medica. It is generally conceded by our apothecaries that about one half of all their sales, in amount, to customers is derived from this source, and if it were possible to obtain reliable statistics of the per capita or total consumption of these compounds within the Union, the American people would awake, and put in chains a traffic that panders to many vices, that seldom hesitates at any imposture, and as a rule considers the deception of the public to be a legitimate business. Hair washes, called dyes or restoratives, are sold in immense quantities as purely vegetable preparations, when lead and other deleterious minerals make the substance of these. Quieting and soothing syrups are recommended and largely sold as harmless cordials or sedatives for infants, which are composed in good part of morphine, opiates or other powerful sedatives, which should never be administered without the knowledge of the parent or some competent person. The child, whose only defense consists in the power to cry, for whom resistance is a necessity for protection and for development,

*See page 75.

is drugged to sleep, growth is retarded, and the brain and nervous system permanently injured, because of the ignorance of the parent, alike of the laws of health and of the deleterious remedy, which is misrepresented in all its component parts. No restriction of any kind is imposed upon ignorant quackery, while the physician, before he can prescribe or practice medicine, must be educated and pass some examination, as also the regular apothecary, in most of the States, is obliged to label carefully, under stringent laws, all similar preparations. Our newspaper press, which in a country like ours is the source of almost all the political and religious education of the country, for which reason it should know and feel the vast responsibility of its power for good or for evil, to a considerable extent, is filled with advertisements of compounds for the basest purposes, under pretence of removing periodical irregularities, as they are called; and, as the fashion of the day, Bitters and Tonics of all sorts are persistently advertised as restoratives for all classes, when every pharmacist knows they are made to fill the place of the dram shop, which is no longer respectable; and there is no effectual remedy for this but proper legislative enactments forbidding the sale of secret remedies of all kinds.

It is believed more secret medicinal preparations are sold and consumed in the United States than in all other countries, as throughout the continent of Europe there are very stringent regulations in regard to the sale of "nostrums." In Russia, Prussia, and all the German states, the sale of preparations of this sort, as marketable articles, is, as a rule, forbidden by law; they can only be sold at retail by the proprietor by special permission of the authorities, after an examination by competent persons. In France the recipe must be divulged, and improper recommendation is forbidden, while the government in turn protects the proprietor fully in all his style and right of trade mark. This law is the proper one for a country like ours, and is another evidence of French capacity for practical affairs. English regulations in regard to nostrum remedies are very loose; there is no law in Great Britain in regard to these except common law, as it is called, under which some preparations have been indicted and suits made for damages. Formerly patents were granted, and hence the term Patent-medicines, than which there

cannot be a greater misnomer for a secert remedy, the word patent being derived from the latin word "pateo," to open, from the fact that the proprietor was expected to divulge his combination for the future benefit of the public, in return for the privilege of a monopoly of the sale for a limited time.

No patents are granted at this time in any country for secret remedies, and in England legal restrictions are less required, because public opinion is opposed to these compounds; the country is densely populated, the apothecary competent to prescribe is everywhere accessible, and there is great respect for the medical profession, because the profession is properly educated. English apothecaries in business in our cities assure us that the sale of these compounds in Great Britain, in proportion to the population, is not one-tenth in amount of what it is in the United States. To meet the wants of a sparse population like ours, this Association should encourage the manufacture and sale at reasonable prices of all needful preparations for various purposes, for the reason that in our country there is a want of respect for the medical profession as a whole, for the reason that many of our physicians know very little about Materia Medica and Pharmacy.

A young man reads a little in some country district, attends a hasty course or two of lectures in some neighbouring city, and is perhaps examined and graduated in some local school, takes his diploma and embarks for the great interior, to some secluded place where advantages and proper experience cannot be obtained, and he retrogrades, and the isolated settler, the agriculturist, the village mechanic, has to take his choice between the infallible remedy of the newspaper and the fallible physician. With the newspaper, which is the source of almost all our ideas, in every hand, with the press on his side because long advertisements support the paper, the nostrum vender has finally contrived to enlist the courts in his favor, and through improper judicial decisions under the law as applied to "trade-mark," has managed to obtain a perpetual monopoly of what he calls his proprietary articles. Patent and Proprietary are favorite terms with nostrum venders, because in most civilized countries they are outlawed or are not recognized as a respectable class of persons, and these terms imply public countenance and legal rights. It has always

been held that the right of a proprietor in the good will of his trade mark was secured to him for public considerations only, because the trade mark is a guarantee of quality that protects the public against imposition and fraud, and hence every proprietor, to secure property of this sort, must show, when called upon, that his article has merit and is not misrepresented, etc.

We have had within a few years important decisions upon this principle of law adverse to secret preparations, for the reason that the value of the article could not be shown, as in the celebrated case before Judge Duer of the United States Court, in the city of New York. The proprietor of the Balm of a Thousand Flowers, in a suit against the maker of the Balm of Ten Thousand Flowers, was thrown out of court as an impostor. The proprietor of a secret remedy should have no more right to protection under the law as applied to trade marks than the freebooter of the ocean has to protection under that flag which has been so long recognized as the mark of his trade, and of the poison bottle; but we want a law to confirm this. The secrecy of any medicinal preparation should be "*prima facie*" evidence of fraudulent intent. Patent medicines, as they are called, should be patent—open to all with recipes that are accessible, in order that public demoralization and the injury attendant upon the use of these articles may be stopped. There are two great evils in our country in which we should be deeply interested, from the fact that from these, more than from all other causes, not only the profession which is so dear to us, but all society is menaced with demoralization—"The improper traffic in liquors by our apothecaries, and the preparation and sale of secret quackeries of all kinds!"

In discharge of my duties as Chairman of the Committee on the Drug market for the past fiscal year, I beg to submit for consideration the annexed report, together with tabular schedules of Imports and Exports, also a paper showing the rates of duty in various commercial countries in comparison with those of our United States, and short notices or reports of the condition, supply, and demand of the most important articles, with special reference to medicinal drugs.

Very respectfully,

(Signed) DAN'L C. ROBBINS.

NEW YORK, Sept'r 8th, 1868.

STATEMENT OF IMPORTS

Of Drugs and Druggists' Articles into the United States, for the fiscal year ended June 30th, 1867.

Compiled from statistics furnished by Alex. Delmar, Esq., Director of the Bureau of Statistics at Washington, D. C.

A. PRODUCTS OF NATURE.

		QUANTITY.	VALUE.	DUTY.	REVENUE.
I. Animal Materials.					
Cantharides	lbs.	6,055	$ 3,541	50c. lb.	3,028
Cochineal	"	1,089,379	895,460	Free.	
Honey	galls	217,902	128,537	20c. gall.	43,580
Oil Neatsfoot, and other animal oils	"	10,683	7,087	20 p. c. ad v.	1,417
Os sepiæ, or cuttle-fish bone	lbs.	14,329	1,011	5c. lb.	716
Spermaceti	galls.				
Sponges of all sorts	lbs.		126,369	20 p. c. ad v.	25,272
Wax, Bees'	"	25,617	5,450	20 p. c. ad v.	1,090
II. Vegetable Materials.					
Allspice	lbs.	1,551,512	40,588	15c. lb.	232,726
Allspice, powdered	"	51	6	18c. lb.	9
Almonds, not shelled	"	3,377,759	348,553	6c. lb.	202,665
Almonds, shelled	"	938,060	158,161	10c. lb.	93,806
Annatto seed and extract	"	1,542	434	20 p. c. ad v.	87
Articles, crude, used in dyeing and tanning			94,382	Free.	

Balsam Copaiba	lbs.	85,823	$ 27,709	20c. lb.	17,164
" Peru	"	1,271	1,717	50c. lb.	636
" Tolu	"	23,823	15,136	30c. lb.	7,147
Bark, Cassia	"	1,266,762	164,541	20c. lb.	253,352
" Cinnamon	"	33,297	11,877	30c. lb.	9,989
" Peru, Lima and Calisaya	"	939,675	452,441	20 p. c. ad v.	90,488
" Peru, quillaya	"		35	20 p. c. ad v.	1
Beans, Vanilla	"	5,089	21,419	$3 lb.	15,267
Berries, Nuts and Vegetables used exclusively in dyeing and tanning,			142,611	Free.	
Cubebs	lbs.	149,993	19,749	10c lb.	14,999
Cassia Buds	"	12,177	3,693	25c. lb.	3,029
Cloves	"	836,891	47,105	20c. lb.	167,378
Clove stems	"	239,524	1,418	10c. lb.	23,952
Cocculus Indicus	"	827	58	10c. lb.	82
Colocynth, in apples	"	27,555	4,629	10c. lb.	2,755
Cork, unmanufactured			148,120	30 p. c. ad v.	44,436
Dyewood, in sticks	cwt.	1,124,253	746,904	Free.	
Ergot		7,553	4,330	20c. lb.	866
Extr. Logwood			4,492	10 p. c. ad v.	449
Flowers, leaves, plants, medicinal, not specified			145,267	20 p. c. ad v.	29,054
Flowers, Rose	lbs.	1,120	551	50c. lb.	560
Gums and resinous substances, "Aloes"	"	134,496	13,095	6c. lb.	8,070
" Arabic, Gedda, Myrrh, Senegal and all others	"	3,127,470	577,152	20 p. c. ad v.	115,430
" Assafœtida	"	51,689	4,615	20 p. c. ad v.	923
" Benzoin, or Benjamin	"	5,827	2,060	10c. lb.	582
" Camphor, crude	"	432,075	95,334	30c. lb.	129,623
" Camphor, refined	"	30,526	9,994	40c. lb.	12,210
" Cutch, Catechu, etc	"	2,645,069	119,509	10 p. c. ad v.	11,951
" Copal, Kowrie, Sandarac, Damar and other varnish gums	"	4,144,491	545,792	10c. lb.	414,449
" Mastic	"	816	1,457	50c. lb.	408
" Opium	"	135,305	483,012	$2.50 lb.	338,262
" Sang. Draconis, or Dragon's-Blood	"	20,064	4,225	10c. lb.	2,006
" Seed Lac, Stick Lac, or Lac	"	34,044	4,643	10c. lb.	3,404
" Shellac	"	784,365	110,325	10c. lb.	78,437
Hops	"	865,016	267,102	5c. lb.	43,250

		QUANTITY.	VALUE.	DUTY.	REVENUE.
Vegetable Materials,—continued.					
Leaves, Buchu	lbs.	61,556	$ 7,123	10c. lb.	6,156
Madder, ground and prepared	"	7,016,780	517,293	Free.	
Madder		230,655	22,221	Free.	
Manna	lbs	38,649	16,032	25c. lb.	9,662
Oatmeal	"	17,387	51,853	10 p. c. ad v.	5,185
Oil of Almond, bitter	"	1,565	9,555	$1.50 lb.	2,347
" " sweet	"	10,544	4,725	10c. lb.	1,054
" Anise	"	3,894	6,541	50c. lb.	1,947
" Bayleaves	"	1,593	342	20c. lb.	319
" Bergamot	"	32,840	122,133	$1 lb.	32,840
" Cajeput	"	1,146	822	25c. lb.	286
" Caraway	"	3,598	4,876	50c. lb.	1,799
" Cassia	"	20,685	27,860	$1 lb.	20,685
" Castor	galls.	82,802	49,707	$1 gall.	82,802
" Cinnamon	lbs.	46	205	$2 lb.	92
" Citronella	"	14,869	18,781	50c. lb.	7,435
" Cloves	"	956	1,117	$2 lb.	1,912
" Croton	"	3,615	10,484	$1 lb.	3,615
" Cubeb	"	558	1,313	$1 lb.	558
" Fennel	"	211	182	50c. lb.	105
" Hemp and Rape	galls.	215,085	138,233	23c. gall.	49,470
" Juniper	lbs.	6,256	3,834	25c. lb.	1,564
" Linseed	galls.	3,267,803	2,123,350	23c. gall.	737,794
" Mace	lbs.	277	302	50c. lb.	139
" Nutmegs	"				
" Olive, in casks	galls.	172,830	153,294	25c. gall.	43,207
" " bottles	"	124,497	215,406	$1 gall.	124,497
" Orange and Lemon	lbs.	34,227	71,019	50c. lb.	17,114
" Palm and Cocoanut	galls.	718,476	300,650	10 p. c. ad v.	30,065
" Rose	oz.	10,381	52,446	$1.50 oz.	15,571

Oil of Salad	galls.	9,966	$ 16,054	$1 gall.	$ 9,966
" Thyme, red	lbs.	14,760	9,601	25c. lb.	3,690
" " white	"	1,619	1,285	30c. lb.	486
" Valerian	"	121	889	$1.50 lb.	182
" Wormwood	"				
" others, not otherwise provided for	"		56,484	50 p. c. ad v.	28,242
Pepper, Black and White	"	5,516,401	300,986	15c. lb.	822,460
" " " ground	"	386	129	18c. lb.	70
" Cayenne or Red	"	10,968	552	15c. lb.	1,644
" " " ground	"	276	335	18c. lb.	50
Root, Ginger	"	1,995,236	115,554	5c. lb.	99,761
" " powdered	"	2,290	352	8c. lb.	183
" Ipecac	"	11,752	20,639	50c. lb.	5,876
" Jalap	"	42,168	25,164	50c. lb.	21,084
" Licorice	"	3,034,255	90,250	2c. lb.	60,685
" Rhubarb	"	71,215	74,350	50c. lb.	35,608
" Sarsaparilla	"	317,290	52,597	20 p. c. ad v.	10,518
Resin	cwt.	2,769	1,120	20 p. c. ad v.	224
Saffron	lbs.				
Safflower	"		26,719	10 p. c. ad v.	2,617
Seed, Anise	"	148,122	12,239	5c. lb.	7,406
" " star	"	17,307	2,799	10c. lb.	1,730
" Canary	bush.	20,020	39,370	$1 bush.	20,020
" Caraway	lbs.	216,040	15,537	3c. lb.	6,481
" Cardamom	"	21,666	26,850	50c. lb.	10,833
" Castor, Castor Seeds	bush.	60,588	67,687	60c. bush.	36,353
" Coriander	lbs.	49,133	2,070	3c. lb.	1,474
" Cummin	"	20,874	584	5c. lb.	1,044
" Fennel	"				
" Foenugreek and Fennel	"	137,518	5,143	2c. lb.	2,750
" Garden and Agricultural	"		296,896	30 p. c. ad v.	89,069
" Hemp	"	154,865	5,379	½c. lb.	774
" Flax	bush.	1,769,192	2,638,465	16c. bush.	283,071
" Rape	lbs.	96,396	4,337	1c. lb.	964
" Mustard	"	1,232,686	63,675	3c. lb.	36,981

		QUANTITY.	VALUE.	DUTY.	REVENUE.
Vegetable Materials,—continued.					
Seed, Mustard, in bulk, ground	lbs.	57,778	$ 9,397	12c. lb.	$ 6,933
" " in tins or glass	"	204,251	41,490	16c. lb.	32,680
Spirits Turpentine	"	1,029	567	30c. gall.	309
Starch of Rice	"	1,070	109	3c. lb & 20 p. c.	53
" Potatoes	"	1,096,229	25,768	1c. lb. & 20 p. c.	18,118
Sumac	"	13,790,990	559,421	10 p. c. ad v.	55,942
Tapioca	"	704,267	33,302	20 p. c. ad v.	6,660
Wood, Lignum Vitæ			43,369	Free.	
Sago and Safflower	lbs.	1,629,071	47,659	1½c. lb.	24,436
III. *Mineral Materials.*					
Antimony Regulus	lbs.	1,029,589	69,908	10 p. c. ad v.	6,990
Bismuth	"		25,506	Free.	
Chalk, White	cwt.	212,425	12,949	$10 ton.	1,602
" French	lbs.	104,622	2,397	20 p. c. ad v.	479
" all others	"	4,875	9,508	25 p. c. ad v.	2,377
" Red	"	31,532	3,549	20 p. c. ad v.	709
" Billiard	"		458	50 p. c. ad v.	229
Cryolite	cwt.	112,199	84,926	20 p. c. ad v.	16,985
Earth, Fullers'	tons.	315	3,453	$3 ton.	1,045
Emery, ore or rock	"	420	14,150	$6 ton.	2,520
" pulverized	lbs.	907,547	38,777	1c. lb.	9,076
Lead, Black	tons.	1,155	53,880	$10 ton.	11,550
Mercury	lbs.	54,073	28,244	15 p. c. ad v.	4,236
Sulphur, in flowers	cwt.	2,519	6,784	$20 ton & 15 p. c.	51,397
" crude	"	456,002	607,576	$6 ton.	1,368
" in rolls, refined	"	5,864	15,734	$10 ton.	30
Umber, Brown	lbs.	201,575	1,854	½c. lb.	1,007
Ochres, all not specified, dry	"	3,284,044	22,465	½c. lb.	16,420
Red Indian and Spanish Brown	"	1,058,891	18,404	25 p. c. ad v.	4,601

B. PRODUCTS OF ART.

		QUANTITY.	VALUE.	DUTY.	REVENUE.
I. *Chemical Preparations.*					
Acids of all kinds for chemical and pharmaceutical purposes, not otherwise provided for			$ 399		
Acid, Acetic, specific gravity 1040 or less	lbs.	403	86	25c. lb.	101
" " " " 1040 or more	"	231	88	80c. lb.	185
" Benzoic	"		7,167	10 p. c. ad v.	717
" Boracic	"	793,631	83,786	5c. lb.	39,682
" Citric	"	82,720	36,895	10c. lb.	8,272
" Gallic	"	246	455	$1.50 lb.	369
" Muriatic	"		145	10 p. c. ad v.	14
" Nitric	"		425	10 p. c. ad v.	42
" Oxalic	"	323,366	67,684	4c. lb.	12,934
" Sulphuric	"	1,335	97	1c. lb.	13
" Tannic	"	43	91	$2 lb.	86
" Tartaric	"	212,314	61,501	20c. lb.	42,463
Alum and Alum Substitute, Aluminous Cake and Sulph. Alumina	"	4,847,508	75,451	60c. 100 lbs.	29,085
Ammonia, Sal Ammoniac, and Carb. Ammonia	"	1,963,981	125,267	20 p. c. ad v.	25,053
Aniline	"	51,389	92,849	$1 lb. & 35 p. c.	83,786
Antimony, Tartrate of, and pot. (emetic)	"	958	321	15c. lb.	143
Anodyne, Hoffman's	"	114	354	50c. lb.	57
Argole or Tartar, crude and partially refined	"	1,876,731	267,938	6c. lb.	112,604
Arsenic, white Oxide	"	456,349	14,565	20 p. c. ad v.	2,913
Barytes, Nitrate of	"		655	20 p. c. ad v.	131
Barytes, Sulphate of	"	17,603,978	157,020	½c. lb.	88,020
Borax, crude or Tincal	"	45,916	4,901	5c. lb.	2,496
Borax, refined	"	49,599	6,403	10c. lb.	4,960
Calomel of Mercury	"		3,830	30 p. c. ad v.	1,149
Chloroform	"	332	281	$1 lb.	332
Collodion	"	4	2	$1 lb.	4

		QUANTITY.	VALUE.	DUTY.	REVENUE.
Chemical Preparations,—continued.					
Copperas	lbs.	2,722,251	$ 15,172	½c. lb.	$ 40,833
Copper, Sulphate of	"	2,035,156	119,555	25 p. c. ad v.	29,888
Iodine, crude	"	10,701	31,165	50c. lb.	5,350
Iodine, resublimed	"	889	2,566	75c. lb.	667
Lead, Sugar of, or Acetate	"	277,242	25,799	20c. lb.	55,448
Lead, Nitrate	"	185,905	13,144	3c. lb.	5,577
Lime, Chlorinated	"	25,277,095	780,036	30c. 100 lbs.	75,831
Magnesia Acetate	"	2	3	50c. lb.	1
" Calcined	"	24,075	8,421	12c. lb.	2,889
" Carbonate	"	133,902	14,302	6c. lb.	8,034
Morphine and its salts	oz.	941	2,255	$2. 50 oz.	2,352
Potass., Iodide, and Acetate	lbs.	36,846	93,841	75c. lb.	27,634
Potassa, Acetate	"				
" Bicarbonate	"	1,519,413	101,749	1½c. lb.	22,791
" Chromate and Bichromate	"	843,310	85,121	3c. lb.	25,300
" Chlorate	"	366,026	48,468	6c. lb.	21,961
" Nitrate, crude	"	6,029,212	206,919	2½c. lb.	150,731
" " refined	"	132,862	7,971	3c. lb.	3,985
" Prussiate, Red	"	41,534	17,222	10c. lb.	4,153
" " Yellow	"	196,028	49,348	5c. lb.	9,801
Quinine, Sulphate of	oz.	46,142	76,791	45 p. c. ad v.	33,556
Salts, Epsom	lbs.	45,793	783	1c. lb.	458
" Glauber	"	887,931	16,285	½c. lb.	4,440
" Rochelle	"	2,024	504	15c. lb.	303
Santonine	"	1,798	12,941	$5 lb.	8,990
Soda, Acetate of	"	2,688	1,496	50c. lb.	1,344
" Ash	"	118,569,303	2,670,628	½c. lb.	592 847
" Bicarbonate	"	23,319,199	916,084	1½c. lb.	349,788
" Carbonate or Sal	"	17,924,643	276,733	½c. lb.	89,623
" Caustic	"	13,062,923	544,908	1½c. lb.	195,943

Soda, Nitrate	lbs.	29,780,902	542,035	1c. lb.	297,809
Strychnine and salts	oz.	8	21	$1.50 oz.	12
Tartar, Cream of	lbs.	1,728,460	296,999	10c. lb.	172,846
Verdigris	"	186,297	41,629	6c. lb.	11,178
Zinc, Oxide	"	1,565,332	89,573	1¾c. lb.	27,393
" Sulphate	"	22,130	1,243	20 p. c. ad v.	249
Paints, Blue, Prussian	"	29,156	11,306	30 p. c. ad v.	3,392
" Red Lead	"	777,295	44,872	3c. lb.	23,319
" " Vermillion	"	194,848	119,427	25 p. c. ad v.	29,857
" White Lead	"	6,663,536	433,632	3c. lb.	199,906
II. Manufactured Articles.					
Corks, manufactured			282,051	50 p. c. ad v.	142,026
Fruit Ethers, Essences or oil of fruits	lbs.	152	241	$2.50 lb.	380
Extract of Indigo			22,222	Free.	
" Licorice	lbs.	3,862,357	468,807	10c. lb.	386,235
" Madder and Garancine	"		725,511	10 p. c. ad v.	72,551
Fancy Articles, Perfumeries, Cosmetics, Cologne, and other alcoholic preparations	gall.	13,115	119 797	$3 gall. & 50 p. c.	99,243
Fancy Articles and Perfumeries not specified			217,353	50 p. c. ad v.	108,677
Indigo	lbs.	1,069,506	816,974	Free.	
Ink and Ink Powders			79,737	35 p. c. ad v.	27,908
Medicinal Waters, in bottles of 1 quart or less	doz.	32,966	23,070	3c. bott. & 25 p. c.	17,634
" " " over 1 quart	"	22,234	2,733	3c. qt. & 25 p. c.	8,687
" " not in bottles	gall.	379	42	30 p. c. ad v.	13
Oil Cognac, or Œnanthic Ether	oz.	365	461	$4 oz.	1,460
" Fusil, or Amylic Ether	gall.	107	869	$2 gall.	214
" Rum, or Bay Rum Essence	oz.	8,372	459	$2 oz.	16,744
Opium, prepared for smoking	lbs.	50,551	374,035	100 p. c. ad v.	374,035
Ochres, all in Oil	"	6,667	348	1½c. lb.	100
Paints and Painters' Colors, all others			177,888	25 p. c. ad v.	44,472
Putty	lbs.	136,448	2,979	1½c. lb.	2,047
Soap, Castile, common, and all other	"	1,955,080	140,035	1c. lb. & 30 p. c.	75,565
" Toilet or Shaving, perfumed	"	329,045	99,035	10c. lb. & 25 p. c.	57,667
Spirits from grain, first proof	gall.	442,443	211,582	$2.50 gall.	1,106,107

	QUANTITY.	VALUE.	DUTY.	REVENUE.
Manufactured Articles,—continued.				
Spirits from other materials, first proof..... gall.	157,126	74,824	$2.50 gall.	392,815
Ultramarine		76,490	25 p. c. ad v.	19,122
Varnishes, valued at $1.50 per gall., or less..... gall.	10,991	13,129	50c. gall. & 20 p c.	8,171
" " over $1.50 per gall..... "	19,380	56,968	50c. gall. & 25 p.c.	23,932
Water-colors, dry or liquid.....		44,000	35 p. c. ad v.	15,400
Whiting and Paris White, dry..... lbs.	8,486,260	42,261	1c. lb.	84,863
" " " in oil..... "	18,364	109	2c. lb.	367
Wood.....		2,591	Free.	

RECAPITULATION

Of Imports of Drugs and Druggists' Articles into the United States for the fiscal year ended June 30th, 1867.

CLASSIFICATIONS.	VALUE, GOLD.	AVERAGE DUTY, GOLD.	REVENUE, GOLD
A. *Products of Nature.*			
I. Animal Materials.....	$ 1,167,455	About 6 2-5 per ct.	$ 75,103
II. Vegetable Materials.....	13,521,063	" 39⅓ "	5,315,549
III. Mineral Materials.....	1,020,522	" 13 "	132,621
Total crude products of nature.....	$15,709,040	About 35⅓ per ct.	$5,523,273
B. *Products of Art.*			
I. Chemical Preparations.....	$ 8,699,573	About 34 4-11 pr. ct.	$2,992,090
II. Manufactured Articles.....	4,076,619	" 75¾ "	3,088,607
Total products of art	$12,776,192	About 47 3-5 per ct.	$ 6,080,697
Total of imports, A and B.....	$28,485,232	About 40 9-10 "	11,603,970

N. B.—The above values are gold values (in dollars) at the place of exportation.

STATEMENT OF RE-EXPORTS

Of Drugs and Druggists' Articles, the growth, produce and manufacture of Foreign Countries, to various countries, during the fiscal year ended June 30th, 1867;

Compiled from statistics furnished by Alex. Delmar, Esq., Director of the Bureau of Statistics, Washington, D. C.

A. PRODUCTS OF NATURE.

		QUANTITY	VALUE.
I. *Animal Materials.*			
Cochineal	lbs.	21,971	6,499
Honey	galls.	87,175	57,583
Oil Neatsfoot, or other animal oils	"	75	30
Sponges	lbs		27,220
Wax, Bees' or Yellow	"	7,140	2,105
II. *Vegetable Materials.*			
Allspice	lbs.	757,898	31,055
Allspice, ground	"	15	5
Almonds, shelled	"	14,615	2,955
Annatto	"		650
Articles, crude, used in tanning and dyeing	"		5,516
Balsam Copabia	"	13,455	4,421
Bark, Cassia	"	279,429	59,818
" Cinnamon	"	18,681	6,960
" Peruvian	"	6,720	3,546
Beans, Vanilla	"	1,570	4,760
Berries, Nuts and Vegetables, used exclusively in dyeing and tanning			195
Berries, Cubeb	"	200	80
Cloves		42,103	3,264
Dyewoods, in sticks	cwt.	119,342	185,413
Flowers, leaves, plants, medicinal, not specified	lbs.		2,743
Gums, Arabic, Gedda, Myrrh, etc.	"	10,040	3,380
" Cutch, Catechu, or Terra Japonica	"	6,471	852
" Copal, Kowrie, Sandarac, Damar, and other varnish gums	"	11,356	664
Gum Camphor, refined	"	29,007	12,711
" " crude	"	31,524	10,752
" Opium	"	9,348	42,220
" Shellac	"	286	108
Hops	"	238,157	13,852
Oil of Castor Beans	galls.	11,759	15,267
" Hemp and Rape	"	2,494	1,696
" Linseed	"	2,855	3,295
" Olive, in casks	"	10,353	11,201

		QUANTITY	VALUE.
Vegetable Materials,—continued.			
Oil, Olive, in bottles	galls.	1,559	2,611
" Palm or Cocoa-Nut	"	135,659	72,640
" Salad	"	300	336
" all others, essential, not specified			12,851
Pepper, Black and White	lbs.	1,596,349	111,295
" " " ground	"	8,872	815
" Cayenne	"	727	290
Root, Ipecac	"	416	624
" Jalap	"	6,328	5,914
" Sarsaparilla	"	187,111	56,519
Seed, Mustard	"	3,327	383
Spirits Turpentine	galls.	4,613	2,600
Starch of Potatoes or Corn	lbs.	27,300	1,390
Tapioca	"	34,467	4,500
III. *Mineral Materials.*			
Antimony, Crude, or Regulus of	lbs.	122,800	9,823
Chalk, White	cwt.	381	840
Chalks, all others	lbs.	8,800	222
B. PRODUCTS OF ART.			
I. *Chemical Preparations.*			
Acid, Citric	lbs.	112	54
Aniline	"	167	659
Borax, Refined	"	6,720	581
Copper, Sulphate of	"	3,917	235
Potassa, Bicarbonate	"	4,313	1,280
" Chromate and Bichromate	"	68,050	6,266
" Chlorate	"	74	10
" Nitrate, crude	"	148,484	10,403
" " refined	"	9,614	938
Salts, Epsom	"	3,875	236
" Glauber	"	3,724	334
Soda Ash	"	21,527	1,230
" Sal, or Carbonate of	"	23,390	2,092
" Bicarbonate	"	2,280	179
" Caustic	"	19,557	1,449
" Nitrate	"	66,167	1,524
Tartar, Cream of	"	300	94
II. *Manufactured Articles.*			
Corks, manufactured			944
Fruit Ethers, Essences or Oil of	lbs.	500	458
Extr. Licorice	"	20,192	3,928
Extracts of Dyewoods, and other extracts			71,359
Perfumeries, Cologne and Alcoholic Preparations	galls.	42	42
Perfumeries not specified			51,209
Opium, prepared for smoking	lbs.	2,169	19,472
Indigo	"	93,645	84,893
Ink and Ink Powders			32
Spirits from Grain, first proof	galls.	13,562	13,903
Spirits from other materials, first proof	"	80,129	49,103
Varnishes	"	1,050	1,855

RECAPITULATION *of Re-Exports of Drugs and Druggists' Articles, the growth, produce and manufacture of Foreign countries, from the United States to various countries, for the fiscal year ended June* 30, 1867, *from statistics of A. Delmar, Esq.*

A. *Re-Exports of Products of Nature.*	VALUE.
I. Animal materials	$ 93,437
II. Vegetable "	700,138
III. Mineral "	10,885
Total re-exports of products of nature	804,460
B. *Re-Exports of Products of Art.*	
I. Chemical preparations	27,564
II. Manufactured articles	297,198
Total re-exports of products of art	324,762
Total re-exports of products of nature and art	1,129,222

STATEMENT OF EXPORTS

Of Drugs and Druggists' Articles, the growth, produce and manufacture of the United States, to various Foreign Countries, during the fiscal year ended June 30th, 1867,

Compiled from Statistics, furnished by Alex. Delmar, Esq., Director of the Bureau of Statistics, Washington, D. C.

NAME OF ARTICLES.		QUANTITY.	VALUE.
Ashes, Pot and Pearl	lbs.	1,596,592	168,882
Barks for tanning			83,409
Black, Ivory and Lamp	lbs.	421,690	27,025
Drugs and Medicines, assorted			1,382,070
Extracts of Logwood, &c., and Prepared Dyes			649,335
Ginseng Root	lbs.	479,974	535,883
Hops	"	1,001,603	362,946
Glues	"	9,760	2,502
Perfumeries			129,261
Naval stores, Rosin and Turpentine	bbls	334,104	1,984,865
" " Pitch and Tar	"	21,557	84,552
Oil of Castor Beans	galls.	535	1,323
" Essential, all kinds			172,222
" Linseed	galls.	21,918	34,079
" Neatsfoot and other animal oils	"	13,968	15,189
" Petroleum, Benzine	"	224,576	34,175
" " crude	"	7,344,248	1,864,001
" " refined	"	62,125,561	22,267,183
" Spermaceti	"	570,894	1,482,570
" Whale and Fish	"	426,882	319,840
" Cake	lbs.	75,053,925	1,932,305
Paints, prepared			138,689
Quicksilver	lbs.	1,736,924	750,673
Soap, perfumed			50,467
" other	lbs.	5,493,954	559,565
Spermaceti	"	46,047	15,270
Spirits from Grain	galls.	549,310	408,626
" " Molasses	"	1,720,049	687,334
" " other materials	"	1,473,592	750,712
" of Turpentine	"	1,513,225	980,699
Starch	lbs.	2,004,745	171,011
Stearine	"	29,966	3,786
Wax, Bees'	"	253,065	96,282
Zinc, Oxide of	cwt.	3 676	32,041

Summary Statement of Exports of Drugs and Druggists' Articles, the growth, produce and manufacture of the United States to foreign countries, value.....38,178,773

COMPARATIVE LIST OF RATES OF DUTY ON CRUDE DRUGS AND CHEMICALS

In the United States of America, Great Britain, France, Germany and Russia.

	AMERICA.		ENG-LAND.	FRANCE.		GERMANY.	RUSSIA.
		IF EAST INDIES.		BY FRENCH VESSELS.	BY FOREIGN VESSELS.		
Allspice	15c. lb.	10 p. c.	Free.	4 1-10 to 8½c. lb.	10½c. lb.	4 1-10c. lb.	4½c. lb.
Arsenic, White Oxide	20 p. c. ad v.		"	Free.	Free.	Free.	2c. lb.
Balsam of Copaiba	20c. lb.		"	$1.37 100 lbs.	$2.75 100 lbs.	2½c. lb.	Free.
" Peru	50c. lb.		"	$1.37 100 lbs.	$2.75 100 lbs.	Free.	2 1-10c. lb.
" Tolu	30c. lb.		"	$1.37 100 lbs.	$2.75 100 lbs.	"	2 1-10c. lb.
Bark, Cassia	20c. lb.	10 p. c.	"	Free.	$1.82 100 lbs.	4½c. lb.	6½c. to 9c. lb.
" Cinnamon	30c. lb.	10 p. c.	"	3½c. to 6½c. lb.	9c. lb.	½c. lb.	6½c to 9c. lb.
" Peruvian	20 p. c. ad v.		"	2c. to 5c. lb.	5c. lb.	⅛c. lb.	Free.
Beans, Vanilla	$3.00 lb.		"	23c. to 45c. lb.	50c. lb.	4½c. lb.	18c. lb.
Borax, crude	5c. lb.		"	3-10c. to 4½c. lb.	½c. to 11½c. lb.	Free.	45c. 100 lbs.
" refined	10c. lb.		"	17c. lb.	18c. lb.	"	45c. 100 lbs.
Cantharides	50c. lb.		"	18c. 100 lbs.	19c. 100 lbs.	3-10c. lb.	Free.
Cloves	20c. lb.	10 p. c.	"	2½c. to 4c. lb.	7c. lb.	4 1-10c. lb.	6½c. to 9c. lb.
Cochineal	Free.		"	Free.	$1.37 100 lbs.	Free.	Free.
Colocynth	10c. lb.		"	Free.	Free.	½c. lb.	"
Cream Tartar	10c. lb.		"	2 4-5c. lb.	3c. lb.	Free.	45c. 100 lbs.
Cubebs	10c. lb.	10 p. c.	"	1c. lb.	2c. lb.	4 1-10c. lb.	4½c. lb.
Gum, Aloes	6c. lb. and	10 p. c.	"	45c. 100 lbs.	$2.20 100 lbs.	Free.	$1.33 100 lbs.
" Arabic	20 p. c. ad v.	10 p. c.	"	Free.	45c. 100 lbs.	"	89c. 100 lbs.
" Assafœtida	20 p. c. ad v.	10 p. c.	"	"	45c. 100 lbs.	"	89c. 100 lbs.
" Benzoin	10c. lb.	10 p. c.	"	"	22c. 100 lbs.	"	13½c. lb.
" Camphor, crude	30c. lb.	10 p. c.	"	"	18c. 100 lbs.	½c. lb.	Free.

Gum, Camphor, refined	40c. lb.	10 p. c.	Free.	Free.	36c. 100 lbs.	Free.	Free.
" Catechu	10 p. c. ad v.	10 p. c.	"	"	36c. 100 lbs.	"	89c. 100 lbs.
" Copal	10c. lb.	10 p. c.	"	"	1 1-5c. lb.	"	89c. 100 lbs.
" Mastic	50c. lb.		"	"	1 1-5c. lb.	"	89c. 100 lbs.
" Myrrh	20 p. c. ad v.		"	"	1 1-5c. lb.	"	Free.
" Opium	$2.50 lb.		"	18c. lb.	20c. lb.	32c. lb.	22c. lb.
" Sandarac	20 p. c.	10 p. c.	"	Free.	1 1-5c. lb.	Free.	89c. 100 lbs.
" Shellac	10c. lb.	10 p. c.	"	"	90c. 100 lbs.	"	89c. 100 lbs.
Hops	5c. lb.		"	$4.10 100 lbs.	$4.50 100 lbs.	1 3-5c. lb.	$2.23 100 lbs.
Iodine, crude	50c. lb.		"	45c. lb.	50c. lb.	Free.	Free.
" refined	75c. lb.		"	45c. lb.	50c. lb.	"	4c. lb.
Lead, Sugar of	20c. lb.		"	6½c. lb.	7c. lb.	63c. 100 lbs.	2½c. lb.
Mace	40c. lb.	10 p. c.	"	14 to 22c. lb.	36c. lb.	4½c. lb.	6½ to 9c. lb.
Magnesia, Carbonate	6c. lb.		"	19c. lb.	20c. lb.	Free.	Free.
Manna	25c. lb.		"	$7.27 100 lbs.	$7.33 100 lbs.	½c. lb.	"
Mercury	10 p. c.		"	10c. 100 lbs.	46c. 100 lbs.	7-11c. lb.	"
Nutmegs	50c. lb.	10 p. c.	"	14 to 22c. lb.	36c. lb.	4½c. lb.	6½ to 9c. lb.
Nutgalls	Free.		"	Free.	37c. 100 lbs.	½c. lb.	45c. 100 lbs.
Oil Almond, sweet	10c. lb.		"	55c. 100 lbs.	64c. 100 lbs.	2⅛c. lb.	4 1-10c. lb.
" " bitter	$1.50 lb.		"	45½c. lb.	50c. lb.	2⅛c. lb.	89c. lb.
" Anise	50c. lb.	10 p. c.	"	55c. 100 lbs.	64c. 100 lbs.	2⅛c. lb.	43c. lb.
" Bergamot	$1.00 lb.		"	45½c. lb.	50c lb.	2⅛c. lb.	89c. lb.
" Cajeput	25c. lb.		"	7c. lb.	8c. lb.	$2.23 100 lbs.	Free.
" Caraway	50c. lb.		"	45½c. lb.	50c. lb.	2⅛c. lb.	43c. lb.
" Cassia	$1.00 lb.	10 p. c.	"	45½c. lb.	50c. lb.	2⅛c. lb.	89c. lb.
" Castor	$1.00 gall.	10 p. c.	"	55c. 100 lbs.	64c. 100 lbs.	$2.20 100 lbs.	Free.
" Cinnamon	$2.00 lb.	10 p. c.	"	45c. lb.	50c. lb.	$2 23 100 lbs.	89c. lb.
" Citronella	50c. lb.	10 p. c.	"	7c. lb.	8c. lb.	$2.23 100 lbs.	89c. lb.
" Croton	$1.00 lb.	10 p. c.	"	7c. lb.	8c. lb.	$2.23 100 lbs.	Free.
" Cubeb	$1.00 lb.		"	7c. lb.	8c. lb.	$2.23 100 lbs.	"
" Juniper	25c. lb.		"	7c. lb.	8c. lb.	$2.23 100 lbs.	9c. lb.
" Lemon	50c. lb.		"	36¼c. lb.	40c. lb.	$2.23 100 lbs.	89c lb.
" Rose	$1.50 oz.		"	$3.68 lb.	$4.00 lb.	$2.23 100 lbs.	89c. lb.
" Thyme, Red	25c. lb.		"	7c. lb.	8c. lb.	$2.23 100 lbs.	17½c. lb.
" " White	30c. lb.		"	7c. lb.	8c. lb.	$2.23 100 lbs.	17½c. lb.

	AMERICA.		ENG-LAND.	FRANCE.		GERMANY.	RUSSIA.
		IF EAST INDIES.		BY FRENCH VESSELS.	BY FOREIGN VESSELS.		
Oil, Olive, in casks	25c. gall.		Free.	55c. 100 lbs.	64c. 100 lbs.	½c. lb.	$2.77 to $4.11 lb.
Peel, Orange	10 p. c. ad v.		"	Free.	Free.	2½c. lb.	46c. 100 lbs.
Pepper, Red, Black and White	15c. lb.	10 p. c.	"	$3.64 100 lbs.	$9.55 100 lbs.	4½c. lb.	4 to 5½c. lb.
Potas., Iodide of	75c. lb.		"	45c. lb.	50c. lb.	Free.	Free.
" Nitrate of	2½c. lb.		"	18c. 100 lbs.	36½c. 100 lbs.	"	13c. 100 lbs.
Quinine, Sulphate	45 p. c. ad v.		"	Prohibited.	Prohibited.	2½c. lb.	Free.
Roots, Ginger	5c. lb.	10 p. c.	"	18 to 45c. 100 lbs.	45c. 100 lbs.	4½c. lb.	"
" Ipecac	50c. lb.		"	18 to 45c. 100 lbs.	45c. 100 lbs.	½c. lb.	"
" Jalap	50c. lb.		"	18 to 45c. 100 lbs.	45c. 100 lbs.	½c. lb.	"
" Licorice	2c. lb.		"	Free.	18c. 100 lbs.	27c. 100 lbs.	"
" Rhubarb	50c. lb.	10 p. c.	"	18 to 45c. 100 lbs.	45c. 100 lbs.	½c. lb.	"
" Sarsaparilla	20 p. c. ad v.		"	Free.	37c. 100 lbs.	½c. lb.	"
Saffron	10 p. c. ad v.		"	"	Free.	4½c. lb.	26½c. lb.
Salts, Epsom	1c. lb.		"	6 2-5c. lb.	7c. lb.	$1.27 100 lbs.	2½c. lb.
" Rochelle	15c. lb.		"	6 2-5c. lb.	7c. lb.	$2.23 100 lbs.	2½c. lb.
Seeds, Anise	5c. lb.		"	Free.	Free.	Free.	55c. 100 lbs.
" Canary	3-5c. lb.		"	"	"	"	55c. 100 lbs.
" Cardamom	50c. lb.	10 p. c.	"	"	$1.82 100 lbs.	4½c. lb.	6½ to 9c. lb.
" Caraway	3c. lb.		"	"	Free.	Free.	55c. 100 lbs.
" Coriander	3c. lb.		"	"	"	"	55c. 100 lbs.
" Cummin	5c. lb.		"	"	"	"	55c. 100 lbs.
" Fennel	2c. lb.		"	"	"	"	Free.
" Hemp	½c. lb.		"	"	18c. 100 lbs.	"	"
" Linseed	16c. bush.		"	"	18c. 100 lbs.	"	"
" Mustard	3c. lb.		"	"	9c. 100 lbs.	"	55c. 100 lbs.
" Rape	1c. lb.		"	"	18c. 100 lbs.	"	Free.
Soda, Carbonate or Sal	½c. lb.		"	10c. 100 lbs.	13½c. lb.	16c. 100 lbs.	23c. 100 lbs.
Sulphur, in flowers	$20 ton & 15 p. c.		"	Free.	Free.	Free.	Free.
" in rolls	$10 ton.		"	"	"	"	"

N. B.—In bringing foreign weights and money to American pounds and American money, the following figures were taken:

1£ English	equal to	484c.	gold.	1 cwt. English	equal to	112 lbs.	American.
1 franc	"	20c.	"	100 kilogrammes	"	221 "	"
1 rix dollar	"	70c.	"	100 lbs. German	"	110 "	"
1 roubel	"	80c.	"	1 pound	"	36 "	"

In France the duty on drugs, etc., varies according to the place from which the articles come,—whether from French colonies, countries in or outside of Europe, and whether by land or sea. Under the column "By French vessels" are included all the different duties.

NOTES ON THE COMMERCIAL SUPPLY AND QUALITY OF DRUGS FOR THE YEARS 1867—68.

Assafœtida.—This article is in small supply, as only 150 cases, against 270 for the preceding year, arrived in Liverpool and London during the year 1867.

Balsam Peru.—The officinal and technical use of this article has increased very much in Europe for the last few years, and the arrivals have not been in proportion to the demand.

Balsam Tolu.—Has remained very dull throughout the past year, and the market in Europe is overstocked, with large consignments reported on the way.

Bark, Quillaya.—Manufacturers in Europe have at last succeeded in cutting this bark into very small particles, and as the reason why it was not heretofore used has been removed, it has been very extensively used, it is said, during the past year in cleaning wool.

Berries, Cubeb.—There have been several abundant harvests of this article and there is an overstock in all the markets, and the price is lower than has been known for years.

Bismuth continues to be an article of the greatest importance, and notwithstanding its use for technical and manufacturing purposes has almost ceased, on account of its rapid advance in price, the medicinal use has largely increased, especially in France. This country received from the German "Zollverein," in 1860, 12,813 kilos., about 28,000 lbs., and the demand was so brisk in the French Empire, that orders given to the works

in Saxony, the only reliable and main source of supply for all medicinal purposes, had to lay over for several months, in spite of the production having been a regular and uninterrupted one.

It is said there is a prospect of supply from Australia, as 300 bags of bismuth ore have arrived in London from that country. The endeavor to obtain bismuth near Sierre, in the valley of the Rhine, in France, has proved a failure, and several shipments from the Erz Mountains, of Bohemia, have been refused in France because of impurity, containing lead and arsenic, which, as is well known, are difficult to separate.

Camphor.—The supply of this important article has decreased within the past 3 years. There was received in London

in 1865,	6,456	packages.
" 1866,	6,013	"
" 1867,	3,204	"

and, in consequence, there is no stock of importance anywhere at present.

Quite lately it has been reported that large supplies are on the way from Singapore and Hong Kong.

Cork Wood.—Although great pains are taken in Spain, France and several parts of Algeria to cultivate the cork oak tree, the supply from all these countries is getting poorer in quality every year, while the demand for finer qualities is on the increase. It is said the cultivators do not give the trees time to restore themselves after stripping the bark, and the prospect for a continued supply of fine qualties of corks in the future is very poor.

Gum Acacia came freely into market in the fore-part of the past year for some time, when the supply nearly ceased. The demand for this article, for technical and medicinal purposes, has been very good, and white elect has been very scarce, but supplies are looked for in October and November.

Gum Gamboge.—The stock of this article is said to be double what it was a year since, and the price is lower. On account of the high price at which this article has been held, very small lots have been imported into the United States for some time.

The demand at present, in regular medical practice, is very limited; it is mainly sold to the manufacturers of various pills.

Gum Kino.—None but very ordinary qualities have been received during the past year from the East Indies, and most of that has had to be cleaned and dried to fit it for market. We are informed that a considerable portion received in London has been in a semi-liquid state, of the consistence of thick mucilage. The consumption of this article in the United States, within a few years, has materially increased. It is largely used in coloring native and foreign wines, also in the manufacture of spurious red wines.

Gum Myrrh.—For some reason the supply of this article is on the decrease; for the past 3 years the arrivals in England amounted in 1865 to . . . . . 251 cases.
" 1866 " . . . . . 96 "
" 1867 " only . . . . 88 "

Fine qualities of this article are very scarce. From Trieste we learn the receipts have been in similar proportion.

Gum Tragacanth.—The small crop of last year came in almost a bare market, and this article has been in active demand and very scarce. We are informed the coming crop promises a good yield.

Leaves, Buchu.—The supply of small, round, from the Cape of Good Hope, is very abundant, while long leaves are very scarce.

Leaves, Senna.—The demand for East India of all kinds in the United States is very limited, and Alexandria senna seems to be more and more preferred. This variety is very scarce and high, as the late war in Abyssinia interfered with the transportation from Senaar and Massowah. Good Alexandria senna leaves are very scarce and high at present.

Medicinal Indigenous Roots and Herbs.—Of most varieties there has been an abundant supply, with only a fair demand, except in the article of sage, of which the last crop was almost a total failure, and we have had to depend upon Germany. American saffron (Carthamus tinctoria) is in small stock, but

the demand for this article is limited, and on the decrease. There is no arrangement in Washington by which the amount of our exports of these articles in particular can be ascertained.

Mace and Nutmegs. The supply of these articles in the European markets, at the present time, is very much reduced, as there was received in Holland and Great Britain but 153 cases of mace in 1867, against 487 cases in 1866, and of nutmegs 1,200 cases in 1867, against 1,500 cases in 1866.

Nux vomica. The demand for this article for the manufacture of strychnine has very much increased within a few years, while the supply received in Europe from Bombay was only 2,337 cases in 1867, against 4,966 cases in 1866.

Oil of Castor Beans, on account of the high duty of one dollar, gold, per gallon, is only imported for shipment in bond. The crop of beans in the West and South is reported as very large; a correspondent, in Gonzales county, in southern Texas, reports that this county alone will produce this year from 75,000 to 100,000 bushels of beans, weighing 46 lbs. to the bushel, a considerable portion of which will be gathered from plants that have grown without any cultivation, and that one dollar and twenty-five cents per gallon of 8 lbs. will be a remunerative price for the expressed oil, thoroughly prepared and canned for market.

Oil of Cloves has been in good demand, but the market has been fully supplied by smugglers, with oil of English manufacture, at low prices.

Oil of Olives. The supply of olive oil has been very limited, but high prices have interfered with the demand. It is said the crop in Spain and Italy, now being collected, will be large.

Root, Ginger. The supply of Jamaica ginger has increased. London received, in 1867, 12,000 barrels against about 8,000 in 1866.

The consumption of this article in the United States is on the increase, as it is gradually taking the place of East India ginger, for ordinary family use.

Opium.—Although held in the United States in large stock, the price has been kept up by combinations and a fair demand.

Recent advices from Smyrna and Constantinople of the damage to the new crop has made holders very confident of realizing extreme prices. Supplies that have reached us through London have been in the main indifferent in quality. The smugglers of this article have at times introduced sufficient quantities to unsettle the market within a short time. There appears to be more vigilance on the part of the government, and very high prices are being obtained for this article.

Root, Ipecac continues in good demand, and, notwithstanding an increased supply, the tendency of prices has been upwards. London received in 1866, 350 packages, and in 1867, 431 packages.

Root, Jalap. Good, genuine, heavy Very Cruz jalap is getting more and more scarce, and in its stead we are receiving Tampico, which is very deficient in resinous substance and is very light in weight.

There is a considerable falling off in our supply of this important drug, and it is not in as good favor as formerly as a medicament.

London received in	1865, . . .	531	bales.
	" 1866, . . .	338	"
	" 1867, . . .	229	"

Root, Rhubarb, China. The supply of this article in quantity has been on the decrease, and what we have received in Europe, as well as in the United States, has been mostly of very ordinary quality. Large, full, sound roots have been very difficult to be obtained. The receipts of rhubarb in London, 1867, were only 1,424 cases, against 2,600 cases in 1866. *Of true Russian* rhubarb *or Turkey*, as it is sometimes called, the supply in Europe has been very limited and the quality very inferior. Reliable Russian rhubarb cannot be obtained anywhere at present.

Austrian Rhubarb, or Dutch-trimmed, as it is called in the United States, is in good supply in Europe, and the quality is said to be very superior; but this article is not in favor among medical men, and it is principally used on the Continent in veterinary practice. The stock of ordinary China rhubarb in

the United States is said to be on the increase, but desirable qualities are very scarce. We are informed that a lot of inferior root was rejected in our port lately and re-shipped to England, to be powdered and returned to this market.

Sponges. Fine toilet sponges are getting very scarce and high, in spite of great efforts to obtain a sufficient supply. The prospect is that we shall have to produce some substitute for sponges and corks in time, or accept inferior qualities of both articles.

Acid, Citric. The demand for this chemical has vastly increased, and the supply of the raw material from Italy for manufacture is no longer sufficient, but crude citric acid has arrived lately from the East Indies, and this has checked the advance in price. The consumption of this article increases every year.

Glycerin. The extensive use of this chemical has caused a large increase in the arrangements for its manufacture, and it is very cheap at present, with a downward tendency.

Iodine. Crude iodine is manufactured and controlled by certain foreign companies, who regulate the price to suit themselves, and there is no prospect at present of a decline in pure.

Oil of Almond. The last harvest of almonds was a very poor one, and both sweet and bitter almond oils are very high.

Oil of Wormwood. Prime oil of wormwood is very high in France and in Germany, for the reason of a deficient crop of the herb and large orders from the United States, which could not be supplied at times.

Oil of Cassia. The large stock of oil of cassia on hand in England towards the end of the year 1866 was further increased by new and heavy arrivals in 1867, and although the demand for this article has been a good one, the price has declined from 7 shillings and 6 pence to 6 shillings, in London and Hamburg. It is thought the Chinese will become discouraged and give up the production of this article, because cassia lignea is high and will pay better.

Saffron. The harvest in Gâtinais is said to be a good one; three fourths of the exports of this article are more or less mixed with Alicante.

Gum Aloes, Socotrine. Good qualities have been very scarce, and the market has been supplied with soft and drossy kinds, which lose about 25 to 30 per cent. in straining, to fit for powder.

Oil of Thyme. The herb in France on account of the heat is reported as very scarce, and the production of this oil in 1868 will be a limited one.

Oil of Lemon is in moderate stock, and a limited supply is expected the present season, as the lemon trees are reported to be to a considerable extent diseased. Oil of lemon and citric acid will be scarce.

REPORT OF THE COMMITTEE ON LEGISLATION REGULATING THE PRACTICE OF PHARMACY.

The Committee appointed at the 15th annual meeting of the American Pharmaceutical Association, consisting of the President and other Officers of the Association, to offer to the legislatures and constitutional conventions of the various States the services of this Association in regard to the legal control of the practice of Pharmacy, have, at an early day, entered into correspondence with several members residing in different States. The Committee soon learned that in some of the States laws had been enacted with the intention of prohibiting the practice of pharmacy by incompetent persons, and that in some other States movements were on foot aiming at the same result.

From the information received it was, however, difficult to judge of the practicability of these laws and contemplated laws; great difficulty was even experienced in obtaining information touching the particulars of the proposed measures. It seemed certain that no concerted action could be had during the past year, and that it would probably be best to defer taking any direct steps for carrying out the intention of the Association as expressed in the resolution referred to, until the laws touching on Pharmacy could be collected, and a plan matured for simultaneous action in the different States.

To carry out these views, the following circular was issued and mailed to one or two active members of the Association in each State:

OFFICE OF THE PERMANENT SECRETARY OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, No. 1607 Ridge Avenue.
Philadelphia, July 1st, 1868.

Dear Sir: At the Fifteenth Annual Meeting of the American Pharmaceutical Association, held in the City of New York in September, 1867, the following resolution was adopted:

Whereas it is recognized, as a prominent means by which this Association hopes to increase its usefulness as a National Association, to urge upon our legislators the importance of a *judicious but certain, determined and, as far as practicable, uniform control of the practice of Pharmacy* in the various States therefore

Resolved, That the President and other Officers of the Association be authorized and instructed to offer any services which the Association can render to the various Conventions for reforming State Constitutions, and to State Legislatures, as opportunity may arise wherein such bodies may consider the co-operation of the Association either desirable or useful.

The officers of this Association have learned that laws regulating the practice of Pharmacy are in force in several States, also that laws aiming at the same object were offered in the legislatures of several States during their last sessions.

Before this Association undertake any further steps, it appears important to know the tenor and scope of these laws or proposed laws, and the President, Mr. John Milhau, of New York City, has directed the undersigned to collect these laws and all other information which may bear upon this subject.

In pursuance of the above instructions, the Permanent Secretary very respectfully requests your co-operation therein, and would particularly feel under obligations to you if you would furnish him with copies of laws or parts of laws now in force in your State, or in consideration by the proper authorities, relating in any way to the practice of Pharmacy, the education of pharmacists, or the qualifications required of them before allowed to practice their profession; information of the operation of such laws and their effect upon the public and the medical and pharmacial profession would be very desirable and important.

If a local Association of Pharmacists or a College of Pharmacy is in existence in your State, you will be kind enough to inform me of any action on their part in regard to any or all of the above points, and if any steps have been taken with a view to the proper education and qualification of apprentices and young pharmacists and druggists.

Hoping that you will favor me with a speedy answer, I am, Sir,

Yours very respectfully,

JOHN M. MAISCH,
Permanent Secretary of the American Pharmaceutical Association.

With one of these circulars an enclosure was sent directed to the Governor of the State or Territory, and the member was re-

quested to forward it to its address with or without a written communication from him, as he might judge best.

The enclosure was as follows:

To his Excellency the Governor of

Sir: I have the honor of handing you the enclosed circular relating to the legal regulation of the practice of Pharmacy, and the position occupied on this question by the American Pharmaceutical Association, now composed of 727 Druggists and Pharmacists, residing in all parts of the United States, including from your State.

In view of the importance of this subject and for the purpose of obtaining reliable information, I would most respectfully ask you to furnish me, for our Association, with copies of laws or portions of laws bearing on the practice of Pharmacy, and such other information as you may deem proper.

I am Sir, most respectfully,

Your obedient servant,

John M. Maisch,

Permanent Secretary of the American Pharmaceutical Association.

1607 Ridge Avenue, Philadelphia, July 14th, 1868.

In a few States the Association has as yet no members, or the residence of the one member therein was not precisely known to the Secretary; in these cases the communication was sent directly to the chief executive officer of the State.

In reply to these communications, the Secretary has received official answers, either direct or indirect, from the Governors or Secretaries of State of the following States and Territory:

Alabama,	Minnesota,
Florida,	Mississippi,
Georgia,	Missouri,
Illinois,	Nevada,
Iowa,	New Mexico,
Kansas,	New York,
Kentucky,	Pennsylvania,
Massachusetts,	Rhode Island,
Michigan,	Wisconsin.

The information received thus far shows that the State of Georgia is the only one in which a law was passed intending to confine the practice of pharmacy throughout the State to competent persons. In the States of New York and Pennsylvania local laws exist with reference merely to a single county. The New York law is as follows:

AN ACT *to regulate the Preparation and Dispensing of Medicines in the City of New York, passed March* 11, 1839.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:—

Section 1.—No person shall be hereafter allowed to commence or practice in the city of New York the business of an apothecary, or that of preparing and dispensing medicine, or of preparing and putting up physicians' prescriptions, without having previously obtained the diploma of the College of Pharmacy of the City of New York, or unless furnished with a diploma from some other regularly constituted College of Pharmacy or Medicine, or shall have passed an examination of the censors of the medical society of one of the counties of this State, and have been furnished by such censors with a certificate of his qualifications for the business of an apothecary; which diploma or certificate he shall produce to the Secretary of the said College of Pharmacy, to be by him registered without charge.

Section 2.—Any person offending against the provisions of this law shall be subject to a penalty of fifty-one dollars for each and every offence, which may be recovered with costs, in the name of the people of the State of New York, in any civil court of record, and the said fines when collected, after deducting such reasonable counsel fees as the court shall allow, shall be paid by the district attorney to the Treasurer of the New York City Dispensary for the use of said Dispensary.

Section 3.—This law shall not apply to persons who now are in said business, nor to the preparation and dispensing of medicines by licensed physicians.

This law is a dead letter on the statute book, chiefly because the dispensary, for whose benefit the fines are to be collected, is unwilling to prosecute the offenders. There are certain inconsistencies in this act, in consequence of which the practice of pharmacy is open to physicians. We believe that a medical man may be a very excellent physician and still would make a very poor apothecary, unless his theoretical and practical knowledge was acquired in the usual way in which knowledge is gained, namely, by study and experience.

The thorough physician certainly possesses much knowledge which is essential to the thorough pharmacist, and by virtue of which he would be enabled to master the profession of the latter in a shorter time than one totally unacquainted with the scientific principles and facts upon which its superstructure is based. On the other hand, he who has mastered pharmacy in its various relations, must have accumulated an amount of knowledge which would facilitate the studies and lighten the labor, should

he contemplate to devote his life to the practice of medicine. Medicine and pharmacy, though closely co-related, and to a certain extent dependent from each other, are nevertheless so utterly different in their functions and spheres of usefulness and research, that it is difficult to understand how, through civil law or otherwise, one profession should be burdened with the management of the affairs of the other.

The Pennsylvania law relates to the single county of Lycoming only; we have been favored by the Secretary of the Commonwealth of Pennsylvania with the following certified copy of this law:

AN ACT *to prohibit others than regularly licensed druggists and graduated physicians from vending and practicing medicine in Lycoming County.*

Section 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same: *That*, from and after the passage of this act, it shall not be lawful for any person or persons, except regularly graduated physicians or licensed druggists, to sell or practice medicine within the county of Lycoming in this Commonwealth; and any person or persons violating the provisions of this act shall be guilty of a misdemeanor, and, on conviction in the court of quarter sessions, shall be sentenced by said court to pay a fine to the Commonwealth for the use of said county, not exceeding five hundred dollars.

JAS. R. KELLY, *Speaker of the House of Rep's.*
DAVID FLEMING, *Speaker of the Senate.*

Approved the eleventh day of April, Anno Domini, one thousand eight hundred and sixty-six.

A. G. CURTIN.

OFFICE OF THE SECRETARY OF THE COMMONWEALTH,
Harrisburg, August 18th, A. D. 1868.

Pennsylvania, ss:

I do hereby certify, that the foregoing and annexed is a full, true and correct copy of the original Act of the General Assembly, entitled "An act to prohibit others than regularly licensed druggists and graduated physicians from vending and practicing medicine in Lycoming county," as the same remains on file in this office.

In testimony whereof, I have hereunto set my hand and caused the seal of the Secretary's Office to be affixed, the day and year above written.

{ SEAL. }

ISAAC B. GARA,
Deputy Secretary of the Commonwealth.

We have not been able to ascertain the effect of this law upon the medical and pharmacial professions in Lycoming County. It is interesting to hear that, so far as we could ascertain with-

out solicitation on the part of the medical or pharmacial fraternity of Pennsylvania, an attempt was made to extend the provisions of this act to the State, as is shown by the following:

Extract from the legislative record of the Pennsylvania Legislature, for the session of 1868.

In the Senate, Tuesday, January 21st, 1868.

Mr. Harry White, (Senator for the 22d district, comprising Cambria, Indiana and Jefferson counties), read in his place a supplement to an act to prohibit others than regularly licensed druggists and graduate physicians from vending and practising medicine in Lycoming County, approved April 11th, 1866, extending the same to the whole State.

Referred to the Committee on the Judiciary General.

Session of Friday, January 24th, 1868.

Mr. Brunett, (Senator for the 9th district, comprising Carbon, Monroe, Pike and Wayne counties), from the Committee on the Judiciary General, reported, with a negative recommendation, a supplement to an act to prohibit other than regularly licensed druggists and graduate physicians from vending and practising medicine in Lycoming County, approved April 11th, 1866, extending the same to the whole state.

A "regular license" is obtained in Pennsylvania by paying to the Commonwealth a certain sum of money, (varying with the amount of business done) which entitles the person to wholesale or retail foreign and domestic merchandise, without liquors. Besides this license the apothecary requires another one, which entitles him to manufacture, vend and dispose of nostrums, patent medicines and medical compounds. From these circumstances it is obvious that the law of April 11th, 1866, is practically useless, since no mercantile business can be carried on without a license, and a license can be obtained by any one; incompetent persons are therefore not prevented from practising pharmacy. It is not our province to consider the effect of this law upon the medical profession, though, if we may venture an opinion, there is probably no obstacle to hinder ignorant pretenders from inflicting their marvellous medicines and still more marvellous cures upon suffering humanity.

A copy of the law of the State of Georgia was furnished by our fellow member Mr. Fleming G. Grieve, of Milledgeville, and was found to be a correct transcript from the Code of the State of Georgia, which was received by your Permanent Secretary from Colonel B. B. de Graffenried, Secretary of the Executive Department of Georgia.

Extract from the Code of Georgia, (published 1867). Chapter III, Physicians and Druggists.

§ 1418. It is their duty (i. e. the Board of Physicians of the Allopathic School),

4. To grant licenses to apothecaries upon their standing a satisfactory examination as to their knowledge of drugs and pharmacy.

§ 1429. No person in this State (shall open or keep a drug or apothecary store without first obtaining a license therefor from the medical board of his own school. Such license shall be recorded in the office of the Clerk of the Superior Court, and the Clerk is required to keep a list of the names of the persons lincensed in a conspicuous place in his office, for which he shall receive one dollar for each license so recorded.)

§ 1430. Any person violating the preceding section is liable to indictment, and, on conviction, to be fined not less than one thousand nor more than five thousand dollars, and for a continuation after said conviction, to the like fine and imprisonment not exceeding six months. The onus of proof is upon the defendant to show his authority.

§ 1431. Druggists are exempt from obtaining said license who were engaged in said business prior to 24th of December, 1847, and who continued so at the adoption of this code, and merchants or shop-keepers may deal in medicines already prepared, if patented, or if not patented, are legally warranted by a licensed druggist.

On receiving the gratifying information that a pharmacist and member of this Association, Mr. John M. Clark, of Milledgeville, is a member of the medical board provided by the laws of Georgia, your Secretary corresponded with him, to learn some particulars about the effect of this law upon the community, and the standing of our brethren in pharmacy in the State named. We extract from Mr. Clark's letter the following passages, as likely to throw some light on this subject, and to give some hints of desirable modifications of this or similar laws:

MILLEDGEVILLE, GA., Aug. 17th, 1868.

MR. JOHN M. MARSH:—

Dear Sir, ... The law is well thought of and received here by the public and those interested directly, but it does not entirely answer the purpose intended by it, of protecting the public from the impositions of ignorant apothecaries. The intention of it was, that it should be applied to physicians, but a clause is inserted extending its application to apothecaries, consequently the board is composed entirely of physicians, except myself, who is the only pharmacist that is a member of it. The law is so framed that a person having a physician's license can practice pharmacy without undergoing an examination and procuring a license as an apothecary, which is a very

objectionable feature in it. I have made efforts to have this part of the law changed. My observation is, that those who have studied the practice of medicine *only*, as a rule, do not make good pharmacists. It is obvious to any person capable of judging in the matter, that a pharmacist should be educated specially to his profession.

I do not know of its being the duty of any officer here to prosecute those practicing medicine and pharmacy without license, consequently no prosecutions take place for violation of the law, and but few come forward for examination and to procure license to practice pharmacy. I know of but five licentiates of the board who are now actually doing business in this State, which contains about one million of inhabitants, although there are plenty of "Druggists" here, some of whom will compare favorably in qualifications with those of any other portion of the country; but, as elsewhere in the United States, the apothecaries here vary exceedingly in regard to their qualifications for their profession.

The board of physicians charge $20 for examination and license, but if the candidate is rejected, which frequently happens, no charge is made. The examinations are rigid, but fair, unusual acquirements are not, but competent knowledge is required of him, besides which he must be 21 years old, and of good moral character. He is not required to be a graduate of any school. If he has competent knowledge no question is asked where or how he got it. I think this part of the law is just and wise, as many young men in our wide country have no opportunity of attending schools of pharmacy, and if they avail themselves of means within their reach, and by industry qualify themselves for the duties of their profession, they should be allowed to practice it.

The law of Georgia was not retroactive in its operation. Those actually engaged in business at the time it went into operation were not required to procure a license. . . . . .

Yours, truly,

JOHN M. CLARK.

The Code of the State of Georgia contains also a provision in regard to mistakes made by druggists, as follows:

§ 2954. If a vender of drugs and medicines, by himself or his agent, either knowingly or negligently furnishes the wrong article or medicine, and damage occurs, from the use of the drug or medicine furnished, to the purchaser or his patients, or his family, or his property, the vender shall respond in damages for the injury done. If death ensues to the purchasers in any case arising under this or the two foregoing paragraphs,* the right of action shall be with the widow or children, as prescribed in cases of physical injury.

This paragraph is eminently just; it is probable that in other States prosecutions for mistakes may be commenced under provisions relating merely to sustaining personal injuries in general; but even the fatal mistakes of apothecaries happening occasionally

* They relate to adulterated drugs and unwholesome provisions.

in the United States appear usually to create some excitement for a time and are never or rarely followed by punishment. How far the proprietor should be held responsible for the mistakes of his clerk (agent, as the above law has it), could scarcely be a matter of controversy, if the clerk is otherwise competent and the arrangement of the store such as not to invite or almost necessitate mistakes.

If we turn our eyes to our neighbors north of us we shall find that the affairs of pharmacy in Canada are in as unsettled a condition as those of the United States. Mr. Henry R. Gray, of Montreal, writes with regard to the status of pharmacy in Canada.

"In the Province of Ontario (Upper Canada) there is at present no legislation whatever affecting the practice of pharmacy; in Quebec, (new name for *Lower Canada*) a law, *which has never been enforced*, requires a chemist and druggist to hold a license from the provincial Medical Board, said license obtainable after an examination before the Board, which is composed entirely of physicians.

"We hope to amend this, and to establish a standard of education for ourselves, and to obtain the power to examine and license persons to practice the ancient and honorable science of pharmacy, without any interference whatever from any other profession."

Information of precisely the same character has been received from Mr. Wm. Saunders, of London, Ontario, (Upper Canada), who, in addition to the information contained in the foregoing communication, states: "I cannot just now find out who the men are composing this board or who appoints them. The provisions of this act have never been carried out, nor the penalties ever attempted to be enforced, so that it is practically a dead letter."

Before offering any remarks on the above laws of Georgia and the province of Quebec, we lay before the Association the draft of a law which during the last session of the legislature of Maryland passed the Senate, but failed in the house for want of time.

A BILL *entitled an Act to prevent incompetent persons from conducting the business of druggist or apothecary in the City of Baltimore.*

Whereas, many unskilled and unqualified persons are engaged in vending, mixing and compounding drugs, medicines and chemicals to the great danger of the health and lives of the people of Baltimore, and it is expedient that legislation shall be had to remedy said evil, therefore,

Section 1. Be it enacted by the General Assembly of Maryland, that hereafter no person or persons shall conduct or open any retail drug and chemical store as the proprietor or principal, or engage in the business of dispensing medicines, compounding physicians' prescriptions, and vending at retail any drugs, chemicals and other medicines without having first obtained a certificate of his or their qualification and competency for such purpose from the commissioners to be appointed under the provisions of this act.

Section 2. And be it enacted, that there shall be three commissioners, to be appointed by the Governor, in Baltimore, to be selected of the most skilled and competent pharmaceutists, whose duty it shall be to examine in said city all and every person or persons who shall desire to engage in the business of retailing drugs and chemicals, and of dispensing medicines and compounding physicians' prescriptions in said city, touching his or their competency and qualifications; upon said commissioners, or any two of them, being satisfied of the competency and qualification of such person or persons as aforesaid, they, the said commissioners or any two of them, shall grant to such person or persons a certificate thereof, which shall entitle such person or persons to carry on the business aforesaid.

Section 3. And be it enacted, that the commissioners to be appointed under the provisions of this act shall be styled the Commissioners of Pharmacy and Practical Chemistry, and shall hold their office for two years, and thereafter until their successors are appointed and qualified. And within thirty days after their appointment they and each of them shall take and subscribe, before the Clerk of the Superior Court of Baltimore city, an oath faithfully and impartially to discharge the duties prescribed by this act.

Section 4. And be it enacted, that said commissioners shall be entitled to receive from every such applicant for such certificate as aforesaid, the sum of not over two dollars, to be applied to the payment of the expenses arising under this act.

Section 5. And be it enacted, that if any person shall engage in the retailing and vending of drugs and chemicals, and of dispensing and compounding physicians' prescriptions contrary to the provisions of this act, either directly or indirectly, or as copartner, or in the name of any other person or persons, such person so offending shall be liable to a fine of fifty dollars for each and every week they or he shall continue such business without such certificate as aforesaid, to be recovered before a single Justice of the Peace of said city as small debts are, whereof one-half part shall go to the informer and the balance to be disposed of as other fines and penalties.

Section 6. And be it enacted, that this act nor anything contained therein shall affect or apply to any person who shall have a diploma from any college or school of pharmacy.

Section 7. And be it enacted, that this act shall take effect from the day of its passage.

It will be observed that the provisions of this law apply merely to the city of Baltimore, and are in their main features

similar to those of New York, Georgia and Quebec; they provide for an examination of non-graduates in Pharmacy before a board which is to judge of the qualification and competency of the applicant to carry on the business of an apothecary. The law likewise imposes a fine and provides for the collection of the same. But with the experience of New York, Georgia and Quebec before us, dating back at least to the year 1839, and for Lower Canada (Quebec) probably to a period much more remote, is it to be expected that in Maryland a law with essentially the same features can be more successful than in the city, province and State named? It is an old axiom, verified by every day's experience, that "what is everybody's business is nobody's business;" and thus it is with the laws and the proposed law in question. Everybody may prosecute an offender under these provisions, and logically we cannot but expect that *nobody* will take the initiatory steps for carrying out such a law. Mr. Clark knows of but five licentiates of the board of Georgia, and he certainly has every opportunity for knowing all; for besides being a member of this board, he merely has to step into the office of the Clerk of the Superior Court, who is required to keep a list of the names of all persons licensed by the board in a conspicuous place in his office, a publicity which is not demanded by the proposed Maryland law; nor is it insured by the New York law, which merely requires the registration, by the Secretary of the College of Pharmacy, of the diploma or certificate of examination.

It is plain that neither legal enactments nor the threat of prosecution and fine, nor the publication of the names of those conforming to the requirements of the law, will induce the parties in question to comply with the same; it is obvious that it must be made "somebody's" duty to see to the strict compliance with every legal provision. If it is the duty of a board to examine applicants, might it not likewise be the sworn duty of the same board to see that the law is carried out in every other respect?

If all the States make the carrying on of a business dependant upon the payment of a certain sum of money, for which a license is granted, the officer issuing the license might probably be instructed to demand a diploma or a certificate of examina-

tion from all persons applying for a license as apothecary; but such a provision would require the alteration of the license laws of many if not all the States, since licenses are usually granted for the wholesaling or retailing of imported and domestic merchandise; so that a pharmacist, or apothecary, or chemist, or druggist—by whichever name the State law may know the disciples of our profession—could be compelled to take out a license different from other dealers in merchandise. We apprehend that this would involve more trouble and greater disinclination on the part of the legislative departments of the States than a course similar to or identical with the one suggested before.

And besides these considerations, is not the adoption of a clause giving to the informer a portion of the fine objectionable in all its features? It is not necessary for us to dwell here upon the fact that such information is, in most instances, lodged not for the good of the cause, but simply out of cupidity or spite; and we conceive that the estimation of espionage in which parties lending their aid to such prosecutions are held by the public is a sure indication that we would not succeed any better with such a legal clause, no matter how just our cause or how much benefit might be derived thereby for the public.

We shall touch now upon the question whether a diploma from a College of Pharmacy or the passing of an examination of the applicant before a board ought to be regarded sufficient for the qualification of carrying on the business of a Pharmacist. The argument of Mr. Clark in favor of granting a legal license to any competent person, without asking a question how or by which means he has gained his knowledge, would certainly, it seems to us, be more acceptable and considered eminently just by the public at large. Various States recognize physicians as such if they are capable of passing an examination before a medical board, even though they have never attended a course of lectures in any of the numerous medical colleges. The Colleges of Pharmacy are few in number, and the public at large do not as yet appreciate their importance in educating the young devotees of pharmacy to their profession, simply because it regards pharmacy more in the light of a trade and scarcely in the light of a profession. It is curious how inconsistent people may

be under different circumstances. In civil action, involving merely some supposed right or a paltry sum of money, which if lost could be regained by industry, they would not think of engaging for counsel any one except he has been admitted to the bar and consequently has studied law. Yet how often will they entrust their health and life to ignorant pretenders, who in reality are nothing but tradesmen, and do not possess the shadow of the scientific knowledge necessary to understand the nature and treatment of disease, or the nature and treatment of the crude drugs and of the powerful agents obtained from them. It may be prudent, as a kind of interregnum, to allow persons to become practitioners of pharmacy without interrogating them as to the manner in which they obtained their knowledge, in such States or sections of States in which a College of Pharmacy is not in existence, or which are remote from any one of the few now in operation; but it seems but just that, in those cities at least, if not in those States where a college has been established by a charter from the higher authorities, none should be permitted to exercise the privileges of Pharmacists unless they have availed themselves of the opportunities offered in consonance with the laws of the State to become educated to their chosen profession.

That such a course would be favorably regarded by our enlightened legislators has been proven by the introduction, on November 22d, 1867, into the Constitutional Convention of the State of New York, of a resolution proposing the following amendment to the State Constitution:

"SECT.—At the first meeting of the Legislature of this State after the adoption by the people of the amendments made by this Convention to the Constitution, the Governor, with the consent of the Senate, shall appoint two State Medical Boards. One of said boards shall be composed of three members of the medical profession of the homœopathic school; the other shall be composed of five members of the medical profession of the allopathic or old school of medicine. No person shall hereafter be permitted to practice medicine in this State unless after having passed a satisfactory examination in physic and surgery before either of the before-mentioned boards. This provision, however, is not to affect any practicing physician now duly authorized to practice by any legally constituted college of this State. The respective pharmaceutical societies of this State, duly incorporated according to law, shall have full power to license apothecaries and druggists, and no person shall hereafter

dispense or compound drugs without a license from a pharmaceutical society, as before referred to. The Legislature shall regulate the terms of office and compensation of the members of the said medical boards, and direct a uniform system of examination to be made by pharmaceutical societies of all applicants for permission to dispense and compound drugs in this State, and have all further power to effect the carrying out of the intendment of this section. The Legislature shall make it a criminal offence, with any additional penalty, for any person to violate the provisions of this section."

This resolution was offered and ably supported in a speech by the Hon. Stephen J. Callahan, who distinctly announced the intention of it to be in consonance with the practice established by the medical departments of the army and navy. The pharmacist, though not placed in the same category, would soon have to follow if such or similar provisions should become law.

A passing notice may not be amiss in this connection of the conditions upon which the different colleges of pharmacy in the United States grant the right to apply for an examination for the degree of graduate in pharmacy. The College of Pharmacy of the city of New York does not absolutely stipulate an apprenticeship, nor the attendance of lectures, which is required by the other institutions. The Philadelphia College of Pharmacy allows the apprenticeship to have been served in either a wholesale or retail establishment; in other words, it grants the degree of graduate in pharmacy to pharmacists and druggists alike. The Maryland and Massachusetts Colleges of Pharmacy do not permit the apprentice of a (wholesale) druggist to graduate, but merely grant to him a certificate of proficiency, while the title "graduate in pharmacy" is reserved by them for the pharmacist *only*. We have no definite information in regard to these points from St. Louis, but are under the impression that its terms coincide with those of the institutions of Baltimore and Boston. These five are the only colleges of pharmacy at present in which lectures are delivered. We mention these facts merely to show how different the practice of even our educational institutions has been, and how desirable it would be if they could agree upon a uniform basis of the terms upon which the applicant should be honored with the degree of "graduate." The University of Michigan has likewise a school of Pharmacy connected with it; we are, however, without information regard-

ing the degree obtainable at this State institution, nor are the conditions known to us, the fulfillment of which is requisite for graduation.

In the medical department of the army and navy of the United States the status of pharmacy is very low indeed, the stewards, upon whom the duties of a pharmacist devolve, being often taken from the rank with very little regard for their accomplishments, and being likewise required to assist in the performance of other duties. Still both branches of the service are very strict in the acceptance of applicants for the position of assistant surgeon, although only the medical department of the army requires a diploma from a regularly chartered medical college; but both insist on the submission to a strict examination for the purpose of securing, if possible, medical practitioners of the highest ability only; and the assistant surgeon previous to his promotion to surgeon, has to pass a second examination still more strict and searching than the first one. If the army and navy are not satisfied with the diploma alone, does it follow that the public at large should be? What is not good enough for the army and navy, must the public be satisfied with? We propound these questions not as a reflection upon the medical profession engaged in private practice, but rather to show into which channel we necessarily must drift, in consequence of the example set by the highest authority in the country in the care for the welfare and health of those who are more immediately under their control.

What is possible for the medical profession ought to hold good also for its offspring, pharmacy, which by its own industry—the long list of names of illustrious pharmacists who have preceded us, attest it—has risen to an important co-ordinate branch of the healing art.

We well remember when a former president of this Association spoke of the probable necessity of establishing, at some future time, a higher degree than that of graduate in pharmacy; and we believe that time will come, and the beginning of its coming will be the enactment and enforcement of laws in all the States, and in those departments which are under the immediate supervision of our national legislature, requiring not less than a

diploma of a chartered college or the successful passing of an examination before a board of practical pharmacists, to enable one to practice our art.

How is such a board to be appointed? It is natural to leave the appointing power to the highest executive officer of the State. We all know, however, that the gubernatorial chair is occasionally occupied by men who, though good and reliable politicians, do not possess the knowledge of, or that spontaneous feeling for, the wants of the public which manifests itself by a discrimination between mere mercantile affairs or political preferences, and the necessities of general education and of scientific pursuits. To cite a case in point: with all its faults, the national law in regard to the inspection of imported drugs is calculated to do and has done a great amount of good; notwithstanding this, the fact cannot be disguised that it, or rather the officers appointed under it, have occasionally been made subservient to political purposes.

Two plans present themselves, both having features to recommend them to your favorable notice. The right to propose candidates for State Examining Boards might be granted to legally recognized—*i. e.*, chartered—local pharmacial associations, the right of appointment from these proposed candidates to be vested in the supreme Executive of the State. This plan appears to meet all difficulties, and to be just and impartial in all its bearings. The only argument that *might* possibly be advanced against it is, that it would give an undue power to a small number,—to a faction of pharmacists. Yet how unjust would such an assertion be! The true facts are, that all the local associations are extremely anxious to strengthen themselves by the acquisition of members, that they are not only not too strict in admitting new members to their rights and privileges, but, on the contrary, that all who have the slightest claim to the appellation of pharmacists are eligible to membership, and consequently that such local associations ought to be considered a fair and trustworthy exponent of the local status of pharmacy, eminently fit in every respect to be entrusted, among others, with the right to recommend candidates for the Examining Board.

The second plan for the appointment of Examiners is based

upon the supposition, and, we trust, the undisputable fact, that of all the public officers, elective and appointed, no class, as such, has kept aloof to such an extent from the intricacies of politics as the judiciary, particularly the judges of the higher courts, so that it might be reasonably expected that appointments made by them would conform quite as much to the actual status —the intelligence and respectability of the class from which the appointments are to be made, as if made by any other mode. The only objectionable feature to this plan is that judges of even the highest courts cannot be expected to be familiar with the details having a bearing on the fitness for such a position, or with the fact that success in business alone, or even coupled with what in the public eye is regarded as strict respectability, is never a sure criterion of the accomplishments and qualifications of a true pharmacist.

The Committee have endeavored, in the foregoing report, to present a critical review of the laws or proposed laws touching upon the qualification of the pharmacist. It is not deemed advisable to review similar laws of foreign countries, particularly of continental Europe, whose institutions are so essentially different from our own; those countries which, through their institutions, correspond more nearly with the United States, are Switzerland and Great Britain. In the European republic, Switzerland, pharmacial affairs have by no means arrived at that point where its most devoted votaries desire to see it; local laws, applicable only to small cantons, interfere, we believe, essentially with a satisfactory regulation, and create a clashing of local interests or supposed interests of the pharmacist, the physician, and the public at large, which are difficult to reconcile; a warning to the pharmacists of the new world to avoid hasty or local legislation, and an incentive to make simultaneous movements over the entire continent, and according to a well matured plan. In such a course we may lend moral aid to, and receive the same back from our brethren in Canada, whose object is similar to our own, and with whom a plan of concerted action might probably be agreed upon.

A critical review of the new laws of Great Britain, in their

applicability to this country, is not attempted; we may be allowed merely to state that while their progressive spirit is generally admitted on the continent of Europe, they have also been severely criticised as not coming up to the scientific status of modern pharmacy; and that, according to the admission of our English brethren, the result must be regarded as a compromise between the interests of different classes, effected for the purpose of securing unity of action. In our endeavors to procure a legal regulation of the practice of pharmacy in this country, it seems to us we ought to make our aim a high one, taking into consideration the spirit of our institutions, the rapid strides of science, and, above all, the welfare of the public, with the least possible infringement upon the personal liberty of the individual.

Thus far your Committee have considered only the qualification of pharmacists; there are, however, several other points connected with the legal control of the practice of pharmacy, which eminently deserve to be mentioned here. We refer to the treatment of diseases by pharmacists, to the sale of poisons and of drugs and preparations used for producing abortion, to the manufacturing and selling of quack or so-called patent preparations, and finally to the adulteration of drugs and medicinal preparations.

The only law of the State of Illinois relating in any way to the practice of pharmacy, seems to have been framed with the intention of counteracting or abolishing the counter practice of pharmacists, and is, as far as we have learned, the only law of the kind on the North American continent. We must state, however, that it is almost entirely unknown in the State of Illinois, and consequently is completely disregarded and not enforced. It is as follows:

LAWS OF ILLINOIS.—*Session of* 1853. *Page* 215.

Section 1.—Be it enacted by the people of Illinois, represented in the General Assembly,—

That all druggists and other persons selling medicines at retail shall be required to place upon each bottle, vial or package by them sold, a label, with the name of the medicine which such bottle, vial or package contains, written or printed thereon.

Section 2.—Any person who shall violate the provisions of the foregoing Act shall be subjected to a fine of not less than one nor more than five dollars, to be recovered before any justice of the peace, in an action for debt. *Provided*, that the provisions of this Act shall not apply to physicians in their practice.

Approved Feb, 12, 1853.

Every true and conscientious pharmacist will agree, that it is not in his province to prescribe remedies for disease, and will carry out the Code of Ethics of this Association, viz., to avoid, in conducting business at the counter, prescribing for diseases, when practicable referring applicants for medical advice to the physician. Our social customs and business manners are, to a great extent, the offspring of those of Great Britain, where a certain class of medical practitioners conduct also pharmacial establishments, furnishing advice and medicine to the poorer classes at lower fees than are charged by those who devote their entire life to the practice of medicine and surgery. In this fact, in the uninterrupted influx of emigration from Great Britain, in the rapidity of growth of our cities, whereby it is sometimes impossible for several generations to shake off certain customs and practices of thinly populated districts, and in the dangerous smattering of a knowledge of medicine acquired by a large proportion of our people; in these circumstances must we look for the primary causes of the habit of people to go to the so-called drug stores for medical advice, and to this must be added the cupidity of some apothecaries, whereby this habit is continually nourished.

With few exceptions, the medical profession in the larger cities have discontinued to furnish medicine to their patients, and it certainly behooves the pharmacial profession to discontinue a practice for which they are not fitted, in consequence of their education being in an entirely different direction. But it usually takes some time to educate the public to the discontinuance of acquired and firmly rooted habits, and it becomes a question of great importance to the public, as well as to the medical and pharmacial professions, how such a habit is to be broken. If the entire population were thoroughly educated the task would be comparatively easy, and might be carried out by the force of argumentation alone. Such, however, is not the

case, and we have to search for means to arrive at the same desirable result by a more circuitous but at the same time effectual way.

If we are not mistaken, a distinguished member of this Association proposed some years ago the adoption, by a conference of physicians and pharmacists in different localities, of formulas for preparations calculated to allay the suffering caused by ailments of every day occurrence, which could be furnished, correctly labelled and accompanied by full directions, by the pharmacist, he being obliged to furnish no other medicine, except upon prescription. Many such compounds have become popular throughout the country, or in certain portions of it, some even having found, deservedly, a place in our national Pharmacopœia. We take the liberty to remind you only of such preparations as compound cathartic pills, Lady Webster's dinner pills, neutral mixture, brown mixture, chalk mixture, volatile liniment, soap liniment, camphorated oil, spiced syrup of rhubarb, Coxe's hive syrup, Turlington's balsam, Wistar's lozenges, cold cream, Seidlitz powders, Huxham's tincture, &c., and among the unofficinal ones we have Parrish's camphor mixture, paregoric and squills, sulphur and cream of tartar, calomel and jalap, Jackson's cough syrup, Bateman's drops, Godfrey's cordial, Dewees' carminative, Dalby's carminative, Hooper's pills, number six, worm tea and many others, which are habitually used as family medicines.

Such a course, we conceive, would likewise be beneficial in another direction; it would counteract that craving for quackery, the so-called patent medicines, by substituting good standard preparations, of known composition, for most of the high priced trash that is imposed upon the community. It is from this source—the proprietors of such nostrums—that we must expect the greatest opposition against all plans of establishing pharmacy upon some legal and sound base. It is our opinion that, at best, the indiscriminate manufacture of such nostrums is merely tolerated, but does not possess any inherent right, and that the State, if not the municipal legislatures, may claim and exercise at any moment the prerogative of regulating the manufacture and sale of such articles, for the same reasons they have created boards of health, empowered to establish at all times hygienic regulations, which are compulsory on an entire community.

It is peculiar that European pharmacy is agitating for confining the sale of secret medicines to pharmacial establishments only, because they are put into the market as remedies, if not as specifics, for certain diseases, while the tendency of American pharmacy is towards the means to rid itself of such an incumbrance. The reason for this difference is easily given, if we take into consideration that the European pharmacist is protected by law in the sale of all *medicinal* preparations, while the American pharmacist regards free trade within the limits of this country, as essential to the prosperity of the nation, and in consonance with the principles of a sound national economy; to him every medicine or medicinal preparation becomes a commercial article as soon as it is prepared, put up and properly labelled. If A puts up a mixture of molasses and licorice, flavored with sassafrass and wintergreen, and calls it A's sarsaparilla, it becomes, through the label, an article of merchandise, which any tradesman may dispose of, and, as far as such stuff is concerned, the American pharmacist regards himself as a tradesman only.

If it comes to the manufacture of such compounds, however, we conceive that the legislative branches of our national, State and municipal governments have the same right to regulate that as to regulate the manufacture and traffic in whisky and kindred spirituous preparations. The State of Pennsylvania, and probably other States, exercises that right, in part, by imposing an annual fee for a license, to enable one to manufacture, vend and dispose of nostrums, patent medicines and medical compounds; and Congress has done the same by imposing certain specific taxes (stamps) upon all medicinal preparations claiming a secret in their composition or mode of preparation. Adulterators of articles used for food, drink or medicine are subject to punishment, according to the statute books of many states, but is he not to be regarded in nearly the same light who, under the innocent names of soothing syrup, teething syrup, whooping cough syrup, anodyne, elixir, &c., &c., vends poisonous compounds without even calling the attention of the public to the poisonous ingredients or cautioning the customer against the inconsiderate use of the same, but on the contrary frequently asserts that the nostrum is entirely harmless? It would be a question of great importance

to ascertain which cuts short the thread of life of the greatest number of persons, whisky or patent medicines? The former seeks its victims among adults, but the latter, we are inclined to think, chiefly amongst the children, and probably quite as often by acts of omission as of commission. To investigate such facts, however, belongs properly to the province of the medical fraternity, to whom we would respectfully refer it.

As long as secret medical compounds must necessarily be kept, it would be eminently proper to distinguish in law between the manufacturer and retailer, and not require the latter to purchase the right to *sell*, only upon the condition that the right to *manufacture* is to be paid for at the same time; until manufacturers and retailers are regarded as two different persons in the eyes of the law, the almost daily appearance of new nostrums, though they may acquire only a local fame, cannot be stopped.

In regard to the sale of liquors by apothecaries, the Internal Revenue law of the United States contains some provisions, with which the members of the Association are familiar. The 59th section of the new tax law, passed July 20th last, gives an explanation of a retail liquor dealer, in which the clause exempting apothecaries from taking out a liquor dealer's license under certain conditions, is not contained. We clip from a newspaper paragraph the information that a Philadelphia druggist inquired of the Commissioner of Internal Revenue, whether the exemption of apothecaries had ceased under the new law; the answer was

"That the provisions of the law in reference to apothecaries were not modified by the act in question. They are subject to the same regulations as before, and incur no additional liability to special tax by reason of the sale of alcohol in any quantities; but if they sell liquor in any amount, except by dispensing upon physicians' prescription, the wines or spirits officinal in the United States and other national Pharmacopœias, in quantities not exceeding half a pint of either at any one time, nor exceeding in aggregate cost value the sum of $300 per annum, they become liable to the special tax of retail dealers in liquor, and of wholesale dealers in liquor, if their sales of liquor, including all other merchandise, exceed $25,000 per annum."

We have learned of but one State law in reference to the sale of spirituous liquors by apothecaries. The Honorable Secretary of the Commonwealth of Pennsylvania has furnished us with a certified copy of Section 5, of

AN ACT *to regulate the sale of Intoxicating Liquors.*

* * * * * * * * * * * * *

Section 5. That the provisions of this act shall not extend to druggists and apothecaries who shall sell unmixed alcohol, or compound, or sell any admixture of wine, alcohol, spirituous or brewed liquors in the preparation of medicines, or upon the written prescription of a regular practicing physician: Provided, that no druggist or apothecary shall sell or keep for sale under any name or pretence any preparation or admixture as aforesaid, that may be used as a beverage; and any violation of this section shall be punished in the manner prescribed in the twenty-eighth section of this act.

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RICHARDSON L. WRIGHT, *Speaker of the House of Rep's.*

WM. M. PIATT, *Speaker of the Senate.*

Approved the thirty-first day of March, Anno Domini one thousand eight hundred and fifty-six.

JAMES POLLOCK.

OFFICE OF THE SECRETARY OF THE COMMONWEALTH,
Harrisburg, July 22d, A. D., 1868.

Pennsylvania, ss:

I do hereby certify, that the foregoing and annexed is a full, true and correct copy of Section 5, of the original act of the General Assembly, entitled

An act to regulate the sale of intoxicating liquors, as the same remains on file in this office.

In testimony whereof, I have hereunto set my hand and caused the seal of the Secretary's Office to be affixed, the day and year above written.

{ SEAL. }

ISAAC B. GARA,
Deputy Secretary of the Commonwealth.

The clause prohibiting apothecaries from selling any spirituous preparation or admixture that may be used as a beverage, undoubtedly refers to gin and similar liquors which a number of years ago made their appearance under the guise and garb of patent medicines, as Schiedam Schnapps, Medicinal Holland Gin, &c., and is applicable also to the soda water syrups containing brandy, rum and other spirituous liquors.

Regarding the adulteration of drugs and the sale of adulterated drugs and medicines, the law of the State of Massachusetts appears to be the most stringent of all that have been received. Hon. Oliver Warner, Secretary of the Commonwealth of Massachusetts, writes:

"Section 5, of chapter 166 of the general statutes, imposes a fine not exceeding $400, or imprisonment not exceeding one year, for the adulteration of drugs and medicines; the adulterated drugs and medicines to be forfeited and destroyed."

The law of Kentucky on the same subject would be quite as stringent, if it was not for the insertion of the clause "injurious to health;" as furnished by Mr. C. L. Diehl, it is as follows:

Section 24.—Adulterated food, drink or medicine.

If any person fradulently adulterate, for the purpose of sale, any thing intended for food or drink, or any drug or medicine, with any substance injurious to health, he shall be confined in jail not more than one year, and fined not exceeding five hundred dollars; and the adulterated article, by order of court, shall be destroyed. (Revised Statutes of Kentucky. Vol. 1, page 402.)

The insertion of this clause must necessarily render the law ineffectual; in reality it *permits* the adulteration of drugs and medicines as long as they are merely diluted in strength or adulterated with a substance not injurious to health, as for instance the adulteration of cream of tartar with milk sugar, stale bread or terra alba; the adulteration of quinia with salicine, mannite or the loose fibres of cotton, &c.

The laws of some other States are similar to the Kentucky law. The code of Wisconsin contains, in chapter 171, the following:

Section 3. If any person shall fraudulently adulterate, for the purpose of sale, any drug or medicine, in such a manner as to render the same injurious to health, he shall be punished by imprisonment in the county jail, not more than one year, or by fine, not exceeding three hundred dollars, and such adulterated drugs and medicines shall be forfeited and destroyed.

Chapter 159 of the Revised Statutes of 1846. Sec. 3, § 5888.

The law of Michigan, as furnished by Mr. F. Stearns, is worded precisely like the foregoing; one is evidently a copy from the other.

In the State of Virginia we find a provision on this subject, as follows; it was sent by Dr. R. H. Stabler:

"Code 1860, p. 805. If a free person fraudulently adulterate, for the purpose of sale, anything intended for food or drink, or any *drug* or *medicine*, with any substance injurious to health, he shall be confined in jail not more than one year, and fined not exceeding five hundred dollars; and the adulterated articles shall be forfeited and destroyed."

We do not consider it necessary to enter into an argument to show the necessity of preserving the purity and strength of drugs and medicines; but is it to be supposed that laws such as those quoted above will prevent adulteration? Mere threats of prosecution and fine or imprisonment are, at least to a great extent, ineffectual in this respect as long as money may be made,

or even fortunes amassed by practicing such frauds. Even the national government, with its complex and voluminous apparatus and a large number of inspectors and detectives, has been unable to prevent enormous frauds involving millions of dollars, in the returns of the manufacture of whiskey. Can it be expected that the sophistication of articles in every day use, be they medicines or provisions, may be prevented by threats alone? Who will undertake the trouble, the loss of time, and all the vexations connected with the prosecution of an interest that commands an immense capital because the gains are immense? who will do it unless he has been injured in health or property thereby? And in such a case the courts are open to the injured, and the officers of the law are bound to assist in the prosecution.

In consideration of our republican institutions, there appear to be but two ways to counteract that nefarious business carried on by the adulterators; one—and it is the one most reliable and most secure—is to demand of the dispensers of medicine an education which fits them to discriminate between good and adulterated articles; the other, which might be combined with the former, consists in giving publicity, under lawful authority, to the names and business of those not only who manufacture, but likewise those who retail such adulterated drugs and medicines, unless they are retailed in unbroken parcels put up by the manufacturer, whenever the fact of adulteration has been established before a board of experts. How feasible this latter plan is we leave the association to judge.

The sale of articles which may be used for producing criminal abortion has not been the subject of legislation in any of the States heard from, except that some of the medicines are mentioned among the poisons, the sale of which is regulated by the laws of several States. It is questionable whether any good would result from the prohibition of their sale, since their enumeration in the law would rather tend to bring those into notoriety which are as yet not popularly known. To this objection must be added the fact that in some parts of the country several of these articles, particularly volatile oils, are habitually used externally and in a proper way, which use is, perhaps, entirely unknown in another section. To regulate, by legal

enactments, the sale of such would be extremely difficult and embarrassing, and would most likely not be productive of any good whatever in all those cases where the volatile oil is obtained from plants indigenous, naturalized or cultivated in this country, which may be gathered by any one, and are daily offered for sale in the markets and the so-called herb stores of the larger cities.

The conscientious pharmacist will refuse the sale of all such articles which are used only or chiefly for emenagogue purposes, like ergot and all its preparations, and in the sale of others which are likewise occasionally employed for other purposes he will exercise a circumspection that cannot be infused by any law; while the sale of the former should be prohibited, the sale of the latter class might be left to the judgment of the pharmacist; but he should be *capable* to exercise such a judgment, and thus we are forced by this question again to the argument in favor of proper pharmacial education. To the educated pharmacist may be safely left the discrimination between selling or refusing to sell such preparations, at least with the same propriety that the means to procure these dangerous medicines and the instruments to produce, by mechanical means, the same effect, are permitted to the educated physician. We do not apprehend from such a course any increase of the slaughter of unborn beings, which, according to high medical authority, is practiced to such an appalling extent. The venal spirit of cupidity is not, perhaps, always eradicated by a professional education; at least we may judge so from the notorious facts that criminal abortion is aided, abetted and practiced by some who prostitute the honorable professions of medicine and pharmacy.

In this connection permit us to submit the question, whether it would not be high time to prohibit the manufacture, advertising and sale of such nostrums denominated "golden pills, regulating pills, regulating mixtures," etc., which directly and indirectly invite to the commission of this heinous crime. Does a portion of the blame for its increase, perhaps, attach to that portion of the newspaper press, the columns of which are frequently filled to some extent by the advertisements of such nostrums? We must confess that, speaking in general terms,

the press cannot be held responsible for the advertisements published; yet is the case of the vendor of patent and secret medicines not precisely similar? He sells these preparations—or at least he ought to sell them, not by recommending them or on his own responsibility, but upon the responsibility of the manufacturer. Do pharmacists lend their names and make their profession a cloak for the sale of such articles which every lady in the country—for whose special benefit they pretend to have been gotten up—would be ashamed to have found in her possession? We hope, for the honor of our own profession, that such may be isolated cases, and that their sale is confined to patent nostrum men alone.

The laws in regard to the sale of poisons appear to be very ineffective, while it must be admitted that, if faithfully carried out, they would be productive of some good. One feature appears to have been entirely overlooked by all legislatures, which we consider a very important one, namely, to confine the sale of poisons to such persons only who are thoroughly familiar with all their properties. A few laws do not even prohibit their sale to minors; we think minors and servants ought not to be furnished with poisons except upon the written order of their guardians or employers.

A similar clause is contained in the revised statutes of Kentucky, vol I, p. 401; that portion having reference to slaves, of course, has become inoperative in consequence of the war.

SEC. XVII.—*Selling Poisonous Drugs.* L. 478.

If any person shall sell to, or deliver to, any white person under the age of fifteen years, or to any slave or free person of color, any poisonous drug or medicine, without the written consent of the parent or guardian of such minor, or the master, or person in law having lawful possession of such slave, he shall be fined one hundred dollars.

The law of New Mexico merely directs to label all poisons with their proper names in English and Spanish.

Provisions for the registration of sales of poison are met with in the laws of Massachusetts and Pennsylvania.

The honorable Secretary of the Commonwealth of Massachusetts gives the following information:

Section 7, (Chapter 166 General Statutes) requires an apothecary or other person who sells any arsenic, strychnine, corrosive sublimate or prussic acid

without the written prescription of a physician, to keep a record of the date of sale, article, amount sold and person to whom delivered, under a forfeiture of a sum not less than fifty dollars.

In the State of Pennsylvania we find

AN ACT *to consolidate, revise and amend the penal laws of this Commonwealth.*

* * * * *

Section 70. No apothecary, druggist, or other person, shall sell or dispose of, by retail, any morphia, strychnia, arsenic, prussic acid, or corrosive sublimate, except upon the prescription of a physician, or on the personal application of some respectable inhabitant of full age, of the town or place in which such sale shall be made; in all cases of such sale, the word "poison" shall be carefully and legibly marked or placed upon the label, package, bottle, or other vessel or thing in which such poison is contained; and when sold or disposed of otherwise than under the prescription of a physician, the apothecary, druggist, or other person selling or disposing of the same, shall note in a register, kept for that purpose, the name and residence of the person to whom such sale was made, the quantity sold, and the date of such sale. Any person offending herein shall be guilty of a misdemeanor and, on conviction thereof, be sentenced to pay a fine not exceeding fifty dollars.

* * * * *

JOHN M. THOMPSON, *Speaker of the House of Representatives, pro tem.*

WM. M. FRANCIS, *Speaker of the Senate.*

Approved the thirty-first day of March, Anno Domini one thousand eight hundred and sixty. WM. F. PACKER.

OFFICE OF THE SECRETARY OF THE COMMONWEALTH,
Harrisburg, July 22, A. D. 1868.

Pennsylvania, ss.

I do hereby certify that the foregoing and annexed is a full, true and correct copy of Section 70, of the original Act of the General Assembly, entitled "An Act to consolidate, revise and amend the penal laws of this Commonwealth," as the same remains on file in this office.

In testimony whereof, I have hereunto set my hand and caused the seal of the Secretary's Office to be affixed, the day and year above written.

{ SEAL }

ISAAC B. GARA,
Deputy Secretary of the Commonwealth.

The restriction of this law, to sell poisons only to respectable persons of full age, is a good one, as far as the latter clause is concerned, but the pharmacist might occasionally get himself into trouble if he should refuse to sell on the ground of insufficient respectability. The recording of each sale is made obligatory; the number of poisons is limited to five, so that in Pennsylvania we may, according to the law, sell opium and all the

crude poisonous drugs without restriction, and are required to record, of the poisonous alkaloids, only morphia and strychnia.

The poison law of the State of New York is more stringent, and the list of poisons is considerably increased, though in this respect it can scarcely be called practical. It is as follows:

AN ACT *to regulate the Sale of Poisons.* Passed April 16, 1860.

The people of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. No person shall sell or give any poison or poisonous substance without recording in a book, to be kept for that purpose, the name of the person receiving said poison, and his or her residence; together with the name and residence of some person as witness to such sale, excepting upon the written order or prescription of some regularly authorized practising physician whose name must be attached to such order. Such book shall be kept open for inspection.

§ 2. No person shall sell, give or dispose of any poison or poisonous substance except upon the order or prescription of a regularly authorized practising physician, without attaching the vial, box or parcel containing such poisonous substance with the name and residence of such person, and the word "poison," all printed upon it with red ink; together with the name of such poison written or printed thereon in plain and legible characters.

§ 3. The provisions shall apply to the following poisonous substances, except when sold in wholesale quantities of one pound or over, viz.: arsenic and its various preparations, oxalic acid, corrosive sublimate, chloroform, sugar of lead, tartar emetic, opium and its preparations, oil of bitter almonds, cyanurets of potassium, mercury, silver and zinc, deadly nightshade, henbane, poison hemlock, prussic acid, aconite and its various preparations, atropia and its salts, cantharides, croton oil, daturia and its salts, delphinia and its salts, digitalis and its preparations, nux vomica and its preparations, elaterium, ergot and its preparations, veratria and its salts, cannabis indica and its preparations.

§ 4. Any person infringing any of the provisions of this Act shall, upon conviction, be deemed guilty of a misdemeanor, and shall be punished by a fine not exceeding fifty dollars.

§ 5. This Act shall only apply to incorporated cities and villages having a population of 1000 inhabitants and upwards, in this State.

The laws of Michigan go still farther. The revised statutes of that State, published in 1846, require the correct labelling of every poison, and a separate Act providing for the registration of each sale:

(5890.) *Section* 5. Every apothecary, druggist or other person who shall sel and deliver any arsenic, corrosive sublimate, prussic acid, or any other substance or liquid usually denominated poisonous, or any tartar emetic, without having the word "poison" and the true name thereof written or printed upon a label attached to the vial, box or parcel containing the same, shall be punished by a fine not exceeding one hundred dollars.

A peculiar provision of the following law is that the register of poison sales is to be kept open for the inspection of any police officer or physician; it is probably chiefly intended to obtain reliable information in cases of accidental or designed poisoning:

AN ACT *for the better regulation of the Sale of Poisons.*

Section 1. The people of the State of Michigan enact: That every apothecary, druggist or other person who sells any arsenic, strychnine, corrosive sublimate, prussic acid or other poison, shall keep a record of the date of such sale, the article and amount thereof sold, and the person or persons to whom delivered, and their residence, which record shall be open to the inspection of any police officer or physician during the business hours of each day; and each and every neglect to keep such record as herein provided shall be deemed a misdemeanor, and the person or persons guilty thereof shall, upon conviction, be liable to a fine not exceeding fifty dollars.

Section 2. The giving a false or fictitious name to the apothecary, druggist, or other person from whom such poison was purchased, shall be deemed a misdemeanor, and the person or persons guilty thereof shall, upon conviction thereof, be liable to a fine not exceeding fifty dollars.

(Approved March 17, 1863.)

Section 6, chapter 171 of the revised statutes of Wisconsin is almost literally identical with § 5890 of the Michigan statutes. It was amended at the last session of the Legislature, and now reads as follows:

AN ACT *relative to the sale of poison, and amendatory to section* 6 *of chapter* 171 *of the revised statutes, entitled an act "of offences against the public health."*

The people of the State of Wisconsin, represented in Senate and Assembly, do enact as follows:

Section 1. Section 6 of chapter 171 of the revised statutes is hereby amended so as to read as follows: "Section 6. That every apothecary, druggist or other person who shall sell or give away, except upon the prescription of a regular physician, any article or articles of medicine belonging to the class usually known as poisons, shall require: First. To register in a book kept for that express purpose the name, age and sex of the person obtaining such poison. Second. The quantity sold. Third. The purpose for which it is required. Fourth. The day and date on which it was obtained. Fifth. The name and place of abode af the person for whom the article is intended. Sixth. To carefully mark the word 'POISON' upon the label or wrapper of each vial or package. Seventh. Neither to sell or give away any article of poison to minors of either sex."

Section 2. That any person offending against the provisions of this act shall be deemed guilty of a misdemeanor, and, upon conviction thereof, shall be fined in any sum not less than twenty nor more than one hundred dollars, at the discretion of any court of competent jurisdiction.

Section 3. This act shall take effect and be in force from and after its passage and publication.

Approved March 4, 1868.

The act of March 15th, 1862, contains in the main the same provisions, but is generally less explicit and stringent. Section 2 requires to attach to each parcel a label, with the name and residence of the person selling it, with the word "*poison*" printed or written upon it, together with the name of each poison written or printed thereon, in plain and legible characters. The new law directs the word "*poison*" to be carefully marked upon the label *or* wrapper of each vial or package. The marking of merely the wrapper of a vial defeats the object of the law, which should read, "upon the vial *and* wrapper."

The law of 1862 is interesting yet for the enumeration of the poisons, the names of which were evidently taken from the New York law, and merely placed in alphabetical order, by a person possessing no knowledge whatever of these poisons. The phrase "and its preparations" has been left out, and in two instances the names of some of these preparations have been added; by this strange proceeding it happens that of all the preparations of opium, only laudanum and morphia, and of the preparations of nux vomica only strychnia, are enumerated. The unacquaintance with poisons of the person proposing the law must account for the numerous errors in spelling, and for the ludicrous fact that, by completely misunderstanding the enumeration, by the New York law, of the "cyanurets of potassium, mercury, silver and zinc," this Wisconsin law mentions cyanurets of potassium, and classes the metals mercury, zinc and silver with the poisons.

The section reads as follows:

Section 3. These provisions shall apply to the following poisonous substances, excepting when sold in wholesale quantities of one pound or over, viz: arsenic, aconite, atropia and its salts, cantharides, cannabis indica, chloroform, corrosive sublimate, cyanurets of potassium, croton oil, daturia, deadly nightshade, digitalis, delphinia and its salts, elaterium, ergot and its preparations, henbane, laudanum, mercury, morphine, nux vomica, oil of bitter almonds, opium, oxalic acid, poison hemlock, prussic acid, silver, sugar of lead, strychnia, veratria and its salts, and zinc.

The provisions of the law of the State of Mississippi on the

same subject, published in the revised code of laws of that State in 1857, and copied for your committee by Mr. Matthew F. Ash, are in the main similar to the new law of Wisconsin.

An act regulating the sale of Poisons.

* * * * * * * * * * * * *

Article 2. Every druggist, apothecary, or other person who shall sell or give away, except upon the written prescription of a physician, any article of medicine belonging to the class usually known as poisons, shall be required to register, in a book kept for that purpose, the name, age, sex and color of the person obtaining such poison; the quantity sold; the purpose for which it was required; the day and date on which it was obtained; and the name and place of abode of the person for whom the article is intended; and he shall carefully mark the word "poison" upon the label or wrapper of each package.

Article 3. No druggist, apothecary or other person shall sell or give away any article of poison to any minor of either sex; nor to any slave, without the written order of the master, or the person having control of such slave, or of a physician.

Article 4. No druggist, apothecary or other person shall be permitted to sell or give away, except to physicians, any quantity of arsenic less than one pound, without first mixing soot or indigo therewith, in the proportion of one ounce of soot or half an ounce of indigo to the pound of arsenic.

Those portions of several of the foregoing laws, relating to slaves, have of course, in consequence of the late war, become inoperative. The object of Article 4 is evidently to distinguish at sight arsenic from the numerous white powders used in the kitchen, but the direction to color it for sales in quantities less than a pound is absurd; it ought to make it requisite in all cases when it is to be used for other than chemical or technical purposes, no matter how large or small the quantity sold.

A copy of the law regulating sales of poisons in the District of Columbia has not been received.

Those quoted and mentioned above are all the laws on this subject of which your Committee has been informed. In a critical review of the provisions of these various acts, we have to ask the question of the object, the intention of a law restricting the sale of poisons. It undoubtedly is to prevent the criminal use of the poisonous drugs and preparations, and their being mistaken for harmless articles of similar appearance. It would seem that a distinction ought to be drawn between those potently poisonous chemical preparations which produce death when given in very small quantities, some of them in doses of less than a

grain, and between those poisonous articles which to destroy require a larger dose, or with the uses of which the public are more or less familiar. Could it be done in the face of our free institutions, to absolutely prohibit the sale of the most potent poisonous alkaloids and neutral principles in whatever form they may be? Perhaps so, though it is very doubtful, and this doubt is strengthened by the fact that, for instance, strychnia is used in certain localities in large quantities for the destruction of ferocious animals, and by the provisions of various acts above, which, of *any* poison, merely require the registration of the sale. He who wants to use the poison for self-destruction, will find the means to accomplish his purpose, no matter what restrictions may be placed upon the sale in small quantities of many or all poisons. Many poisonous substances are used in the arts in considerable quantities, and they may be obtained without difficulty; then it is to be considered that, through long continued habit, our public have become familiar with the use of some very poisonous medical agents and compounds, the sale of which can never be stopped by any legal enactment. Any and all such articles may serve the purpose of the suicide.

It is different, however, when the object is the destruction of others; then it becomes necessary for the murderer to use certain agents devoid of strong repulsive odor and disagreeable taste, and to cover up the fact of the possession of poison to avoid suspicion. To meet such cases, it is without doubt the duty of the law to interpose as many obstacles for obtaining the poison as can be done without arbitrary and oppressive legislation. The rigid enforcement of a poison registration law would probably accomplish this object.

The enumeration by the law of the poisons of which registration shall be required, we consider objectionable, since it could at best be incomplete and would burden the law with numerous names of articles perhaps never called for except upon the written order of a physician; but the plan seems feasible, and we respectfully recommend it to your favorable consideration, to suggest to the next Committee revising our national Pharmacopœia, to append to that volume tables of those articles and preparations regarded as very poisonous, poisonous and hazard-

ous. The laws might merely refer to the sale of the poisons regarded as such by the Pharmacopœia of the United States, and to such new remedies which may from time to time be introduced into the practice of medicine, the sale of the very poisonous articles to be duly registered, the vials and packages to be marked with a label containing the proper name of the article sold, the word "poison" and the running number of the register under which each special sale shall have been recorded. Drugs and preparations considered poisonous and hazardous by the Pharmacopœia would not require registration; but the label of each bottle and package of the poisonous articles should have printed, say in red ink, their names and the word "poison."

Hazardous medicines should be labelled, cautioning the purchaser in its use, as for instance, "Poisonous in over doses," "Poisonous when taken internally," &c., such caution to be printed in a different colored ink.

The sale of poisonous and hazardous medicines might be left to the discrimination of the pharmacist, who would have to be required to exercise care and prudent judgement whenever and by whomsoever they may be called for. The sale of the dangerous poisons should be restricted to known adults and the male or female heads of families, and upon their written orders only to their servants and grown up children.

The register should contain the particulars as now required by some of the laws above reported, and each sale should be numbered in regular order. The right to sell poisonous medicines should be confined *only* to parties who are familiar with their physical and chemical properties and proper doses.

While such restrictions and regulations would impose a little trouble to the pharmacist, they would, we believe, tend to lessen the danger of accidents, and increase the chances of identification of those who would procure deadly poisons for criminal purposes.

The enactment of such laws would, however, be scarcely sufficient for the protection of the public and the furtherance of the ends of justice if they would be allowed to become practically inoperative. We must again state it as our opinion that threats of fine and imprisonment alone will not insure the compliance

of all with such or similar restrictions, nor will it have the effect even if coupled with a provision similar to the one existing in Michigan, to have the register open at all times to the inspection of police officers and physicians. It should be made somebody's duty to examine into these facts; but we do not believe that police officers are exactly the persons to be entrusted with such a duty, nor should, for reasons stated before, physicians be required to see to the fulfillment of such regulations. The restriction of the Internal Revenue law, allowing apothecaries to sell, without a liquor dealer's license, officinal wines and liquors *only* upon the written prescription of a physician and in quantities not exceeding half a pint, has been, since it became a law, and is still violated every day by a portion of both physicians and pharmacists, the former insisting that the sale of it as a medicine does not require a prescription, or that a verbal order is sufficient; the latter frequently hushing up their conscience by printing or writing upon their liquor labels "for medicinal purposes only." Yet in the face of these continual flagrant violations of the law, we have not heard of a single case of prosecution under it; for who would be mean enough to act as a spy and informer unless it was his duty? or rather, since it is the duty of every citizen to see that the law is obeyed, *who will move first in this matter?*

It would be useless to enact laws, no matter how good their object and how beneficial their intended effect, without better and stricter safeguards as to their fulfillment. The means to arrive at such a result are, we believe, easy. Two views present themselves: first, it might be made the duty of the examining board, provided by law as suggested above, to interrogate and examine, at least once a year, every apothecary in business in regard to his compliance with the various acts relating to the practice of pharmacy, to examine his register, etc. Or, second, every pharmacist might be required annually to make a written statement to a county court, setting forth therein that he has complied and intends to comply, to the best of his ability, with all the laws affecting his profession, the laws to be quoted by their titles.

We have sufficient confidence in the honor and integrity of the

great majority of practical pharmacists to believe that, under circumstances similar to those suggested, they would conform to the law; but that minority which, notwithstanding such statements, would not live up to their assertions, what could be done with them? This brings us back to the point of prosecution, to undertake which nobody could be found unless his official duty demands it.

There is one means yet, in conjunction with the above, which might, perhaps, secure such a desirable end. It would lie in the direction which has been embraced with much success by the medical fraternity in many States, namely, in the formation of county pharmacial societies, connecting therewith pharmacial censors, whose duty it would be to exercise a strict supervision in regard to the compliance with all laws relating to Pharmacy; a rigid enforcement of the power to expel delinquent members from the society and to break off all professional intercourse with them, would be the necessary consequence of such a course. The professions of law and of medicine have profited by similar courses; will Pharmacy make good her claim to a profession by following their example?

Regarding laws regulating the practice of pharmacy, we have received the following information from Mr. Hennell Stevens, of Columbia, Brazos county, Texas, in relation to this State:

"As might be expected, there are no laws relating to the practice of pharmacy in this State. Except in the larger towns, the sale of drugs is in the hands of the store-keepers, and every physician carries with him and makes up his own medicines. It is not likely that laws relating to the matter will be passed for a long time to come. Of course your other questions can all be answered in the negative."

The picture presented to us in this description of affairs in Texas is undoubtedly applicable also to many of the thinly populated portions of other States. Yet if we read the letter from the Executive Department of the Territory of New Mexico, which we shall presently present to you, we must express the hope that the time will not be distant when the life and health of the entire population of the North American continent—from the almost tropical shores of the Gulf of Mexico to the subarctic regions of Alaska—will enjoy the privilege of not having to

submit to the maltreatment of ignorant pretenders in medicine, nor to the crimes of vendors of trash, calling it medicine.

The condition in this respect of our neighbors in Central America does not appear to be better than in many of the States of the Union. Mr. J. C. Herbruger, of Panama, writes:

"There are no laws in this republic (Colombia) regulating or in any way relating to the practice of pharmacy, it being entirely free to be followed by any person whether competent or not.

"Pharmacy as a science is seldom met with in Colombia; it has more the character of a commercial occupation. There are no societies or associations in Colombia for the advance or protection of pharmacy. Apprenticeship is unknown."

We now ask the privilege of laying before your body the official communications of the Executive Departments of those States in which no laws of the nature treated of above are in force, or from which copies of such laws have not been communicated; they are arranged in the order in which they were received.

STATE OF NEW YORK, EXECUTIVE DEPARTMENT.
Albany, July 22, 1868.

Dear Sir:

The Governor directs me to acknowledge the receipt of your favor of the twentieth inst. with enclosures, and to thank you for the views you express. It is suggested that the facts you mention might properly be embodied in a memorial to the next Legislature.

Very respectfully,

GEORGE S. HASTINGS, *Private Secretary.*

John Milhau, *President American Pharmaceutical Society,*
New York City.

STATE OF FLORIDA, EXECUTIVE OFFICE,
Tullahassee, July 22d, 1868.

JOHN M. MAISCH, Secretary Pharmaceutical Association:

Sir: I am instructed by his Excellency, the Governor of Florida, to inform you that up to this date there has been no important legislation in reference to the practice of Pharmacy.

Very respectfully, your obedient servant,

G. B. CARSE, *Private Secretary.*

STATE OF MISSOURI, OFFICE OF SECRETARY OF STATE,
City of Jefferson, July 23d, 1868.

MR. JOHN M. MAISCH, 1607 Ridge Avenue, Philadelphia, Penn.

Sir: Your communication of July 14th, '68, addressed to his Excellency, Governor Fletcher, has been referred to this office; and in reply I would inform you the State of Missouri has no laws in regard to the same.

Very respectfully, &c.,

FRANCIS RODMAN, *Secretary of State.*

EXECUTIVE DEPARTMENT, STATE OF ALABAMA,
Montgomery, July 24, 1868.

JOHN M. MAISCH, Esq., 1607 Ridge Avenue, Philadelphia.

Sir: His Excellency, Wm. H. Smith, Governor of Alabama, acknowledges the receipt of your favor of the 14th inst., relative to pharmacy, and directs me to reply thereto. The statute books of Alabama are entirely silent upon the subject of pharmacy.

Very respectfully, your obedient servant,

D. L. DALTON,
Secretary.

STATE OF KANSAS, OFFICE OF SECRETARY OF STATE,
Topeka, July 28th, 1868.

JOHN M. MAISCH, Esq.

Dear Sir: In reply to your circular directed to the Governor of this State, I am by him directed to inform you that as yet our Legislature has passed no law on the subject of Pharmacy.

I am, very respectfully, your obedient servant,

R. J. BARKER,
Secretary of State.

EXECUTIVE OFFICE, TERRITORY OF NEW MEXICO,
Santa Fe, July 29th, 1868.

J. M. MAISCH, Esq., Secretary Am. Phar. Association, Philadelphia, Pa.

Sir: I have the honor to acknowledge the receipt of your circular letter on the general subject of pharmacy in the United States, and requesting information of laws in force in this Territory in relation thereto.

In answer thereto, I have to state that there is no general law on the subject of pharmacy in New Mexico. Upon our statute books is one special law only in relation to the sale of *poisons*, requiring that, upon their sale by druggists, these shall be very plainly labelled in both Spanish and English.

A law upon this subject is very essential everywhere, and it will give me pleasure to assist, at the coming session of our Legislature in December, as well as to recommend the passage of a law such as shall guard the public and carry out the objects of your Association.

Very respectfully, your obedient servant,

H. H. HEATH,
Acting Governor, &c., &c., New Mexico.

STATE OF MINNESOTA, EXECUTIVE DEPARTMENT,
St. Paul, August 1, 1868.

JOHN M. MAISCH, Esq.,
Perm't. Sec. Amer. Pharmac'l Association.

Sir:—Gov. Marshall directs me to acknowledge receipt of your favor of July 14, with its enclosure, and to reply thereto.

I have to say that there are no laws in force here, and none have been proposed for enactment, governing or concerning the subject of your inquiry. There is not, to my knowledge, any association of pharmacists in Minnesota, but I may not be fully informed herein.

I am, sir, very respectfully, your obedient servant,

S. P. JENNISON,
Private Secretary.

STATE OF NEVADA, EXECUTIVE DEPARTMENT,
Carson City, Aug. 19th, 1868.

Dear Sir:—I am requested by his Excellency, Gov. H. G. Blasdel, to acknowledge his receipt of your circular letter of July 1st, 1868, making inquiries respecting laws of this State upon the subject of the practice of pharmacy, &c., and to say in reply that there is as yet no statute of this State (which is yet quite young) upon any of the matters you solicit information upon, nor any legally established practice; nor is there any medical or pharmaceutical institution in this State.

I am, very respectfully, &c.,

THOMAS WELLS,
Private Secretary, &c.

JOHN M. MAISCH, ESQ.,
Permanent Sec. A. P. A., &c.

STATE OF RHODE ISLAND, &c., SECRETARY'S OFFICE,
Providence, Aug. 24, 1868.

JOHN M. MAISCH, ESQ.

Dear Sir:—I have received your circular relative to laws bearing on the practice of pharmacy in this State, and in reply beg leave to state that there are no laws on the subject, none even to regulate the sale of poisons.

I am, very respectfully, your obedient servant,

JOHN R. BARTLETT,
Secretary of State.

STATE OF IOWA, EXECUTIVE DEPARTMENT,
Des Moines, Sept. 1, 1868.

JOHN M. MAISCH, ESQ.

Dear Sir:—Your letter enclosing circular is at hand.

Gov. Merrill directs me to express his sympathy with the objects of your Association, and expresses the hope of its success. Little legislation has as yet been effected upon the subject of pharmacy, and he hopes much more may be secured in this direction.

Respectfully yours,

JNO. S. RUNNELLS,
Private Sec. of Gov.

By a careful perusal of these communications, you will observe that all express, either directly or indirectly, their sympathy with the cause of pharmacy and their willingness to further the objects of our Association. The same statement holds good of those communications from the authorities of the other States, which were accompanied by copies of laws and other information. We have, therefore, every reason to congratulate ourselves for the probable success of our object to serve the public by our earnest endeavors to raise pharmacy to that dignity which it deserves among the professions.

We feel sure that our plans will be heartily seconded by the

medical profession of the entire country, which counts among its members many whose names are well known throughout and beyond the limits of the country for learning, research and skill. We feel equally sure that the combined efforts of these two branches of the healing art will be successful, and ultimately productive of incalculable benefit to the public.

In order to mature a plan upon which this Association might take definite action, we respectfully offer the following resolution:*

Resolved, That the President and ex-Presidents of this Association, attending this meeting, be appointed a Committee to take into consideration,

1st. The propriety of drafting a law regulating the entire practice of pharmacy, to be presented to the legislatures of the different States and Territories for their adoption, together with a memorial setting forth the duties of the profession to the public and its actual and contemplated status;

2d. The propriety of inviting the co-operation of the American Medical Association, and of the local Medical and Pharmaceutical Societies;

And that the Committee thus appointed be requested to report at a subsequent session.

Your Committee has reported to you all the information in regard to colleges of pharmacy, bearing on the subject treated of in this report, which has come into their possession. We cannot, however, refrain from communicating to you the flattering notice taken of one of these institutions by the Secretary of the Commonwealth in the capital of which it is located. He writes as follows:

"The Massachusetts College of Pharmacy, incorporated in the year 1852, judges as to the qualifications of persons admitted to practice; and with a view to the proper education of young pharmacists and druggists, has established a course of lectures, which have been well attended, in this city, and money has been raised to render these lectures permanent."

It is likewise very gratifying to your Committee to be able to report to you of the organization in Canada of two Pharmacial Associations, and that this association has, through your Secretary, entered into friendly correspondence with both. Mr. Wm. Saunders, of London, Ontaria, has kindly furnished us the following information:

London, Ontario, August 25th, 1868.

About a year ago the chemists and druggists of Montreal formed themselves into an association, one of the ultimate objects of which is to obtain a

* See minutes of Sixth Session.

repeal of this act (relating to an examination of pharmacists before a medical board) with the formation of a board of examiners out of their own body for the examination of all who shall in future engage in the business. They hold regular monthly meetings, at which lectures are delivered, papers read and discussions carried on, all this resulting in the promotion of good feeling among the members, and awakening an interest in the more strictly scientific departments of our calling. With such men as Mr. Mercer, Dr. Edwards and others among them, the interest in the meetings will no doubt be well sustained. Several donations have already been made to the society, of specimens and books, as the nucleus of a museum and library. As far as I can learn, this organization does not expect to wield much more than a local influence; it has very few members outside of Montreal, and at most its influence will scarcely be felt outside the province of Quebec.

In the upper province (now called Ontario) a similar association has been formed in Toronto, also about a year old, which aims to unite all the chemists and druggists in Ontario, and as many outside of it as possible. They also hold monthly meetings for the reading of papers, transaction of business, etc., and have in contemplation the formation of a museum and library. They have also prepared a bill and submitted it to the government, which they hope will soon be acted upon, "confining the sale of poisons and dangerous substances to those acquainted with their nature and uses, fitness to be tested by an examination before a board of druggists, and reserving the rights of those already in business.' Should this act become law, it may doubtless affect the education of pharmaceutists throughout the Dominion, or its provisions may be made to apply to the province of Ontario only. I think the latter is most probable.

Further, the Toronto association, called "The Canadian Pharmaceutical Society of Toronto," have commenced the publication of a monthly periodical called "The Canadian Pharmaceutical Journal," the fourth number of which has just been issued. Each number contains sixteen pages, about ten of which are reading matter; the size is a little smaller than that of the "Druggists' Circular." The largest portion of the matter is selected, but there are two or three original articles in each number. It has a very fair circulation, and I think promises to be successful.

From all this you will see that pharmacy in Canada is beginning to look up, and that the future promises to be a grand improvement upon the past. I trust the progress to be achieved will more than realize our fondest anticipations.

Before submitting this report, your Committee would respectfully request that, in case the report should be ordered to be published with the proceedings of this meeting, authority be granted to the Permanent Secretary to embody in it all the information which may be received, officially or privately, from those States that have as yet not been heard from.

In conclusion your Committee desire to express their thanks to the Executive Departments of the various States and Territories, and to all those members who have so cheerfully and kindly aided us in our labors.

All of which is respectfully submitted.

JOHN MILHAU, of New York City, *President.*

ROBERT J. BROWN, of Leavenworth, Ks., *Vice-President.*

CHARLES A. TUFTS, of Dover, N. H., *Treasurer.*

JOHN M. MAISCH, of Philadelphia, Pa., *Permanent Secretary.*

Philadelphia, September 8th, 1868.

NOTE.—The following copy of a law referring to Louisville, Ky., has been received from the Governor of Kentucky, through Dr. Thomas E. Jenkins; the provisions of it are not enforced:

ART. XII, SEC. 3.—The said Council may establish and regulate by ordinance, in said city, a Board or Institute of Pharmacy, composed of competent persons, to be elected or appointed as the said Council may prescribe, and may by ordinance provide that all apothecaries, before they shall be licensed to retail drugs and medicines in said city, shall be examined by, and receive a certificate of competency from said Board or Institute of Pharmacy, and said Council may, by ordinance, regulate the trade of retail apothecaries in the business of making up prescriptions and vending poisonous substances or preparations, and prescribe adequate fines and penalties for the enforcement of all such ordinances.

Besides this no information of importance has been received.

JOHN M. MAISCH.

REPORT OF THE COMMITTEE ON SPECIMENS.

The exhibition was in the main hall of the new building of the Philadelphia College of Pharmacy, and in the adjoining spacious hall of the laboratory. In the latter was a collection of living medicinal plants exhibited by Prof. Dr. Wood, and by Mr. Lippincott, of Philadelphia. Among them were fine specimens of Laurus camphora L., Zingiber officinale Roscoe, Ficus elastica Roxb. (Urostigma elasticum Miq.), Laurus cinnamomum L., Caryophyllus aromaticus L., Pimenta vulgaris Wight and Arn., Coffea arabica L., Illicium anisatum L., Piper nigrum L., Croton eluteria Sw., Olea europea L., Phœnix dactilifera L., Euphorbia pulcerina L., Dracena terminalis L., Dracena brasiliensis L., Indigofera tinctoria L., Aloe vulgaris Willd., Aloe variegata Willd., Musa Cavendishii, etc., etc.

PHARMACEUTICAL DRUGS.

Except some fine specimens of Cinchona barks from Messrs. Powers and Weightman of Philadelphia, and of Rhubarb root from Dr. Squibb of Brooklyn, there was an entire lack of any exhibition of pharmaceutical drugs. Howsoever interesting and valuable an exhibition of pharmaceutical and technical preparations and chemicals is, it is inadequate if it be not combined as much as possible with the display of the sources from which those preparations are derived. If modern pharmacy has culminated in the achievement of defined concentrations of the virtues of the native drugs and displays them in magnificent crystals or in an array of excellent preparations—product and source are inseparable in science as well as on a comparative display. To give a practical example, an exhibition of the numerous derivatives of the Cinchona barks, of Opium, etc., cannot be comprehensive without being based upon the simultaneous display of the drugs from which they are abstracted. The instructiveness and value of comprehensive collections of drugs and their derivatives need as little demonstration as does the pointing out of the importance of the fundamental science of our profession—of pharmacognosy, or as it is mostly but not altogether correctly

termed, materia medica. The points of interest in the drugs, their descent and gathering, their preparation for trade and shipping, their further selection and preparation, their characteristic properties and virtues, their use and application, their accidental intermixtures or fraudulent adulterations, are as manifold as attractive. Although the collections of our colleges in general are comprehensive and superior in specimens, yet in one respect they cannot compete with similar displays of the wholesale trade, as the former only contain individual specimens and in so far represent only the species of the drug, while exhibitions of the trade display the goods as merchandise *en masse*, and often in their native shipping habitus and packing. Such exhibitions are more likely or ought to be a full representation of the whole domestic and foreign drug market, and of the pharmaceutical industry of the day.

It is therefore to be regretted that, at our last exhibition, which was in general well supplied, the most important branch of pharmacy was not duly represented. Our great importers and jobbers have, at these annual meetings of the profession, an excellent chance to contribute greatly to the usefulness, the value and success of this concourse, to illustrate to and impress upon the pharmaceutists the paramount instructiveness and the important bearings of comparative pharmacognosy, to encourage its study and thereby to advance a desirable appreciation of higher professional aptitude, and consequently of retributive success in trade and of congenial estimation of our profession.

To show how justly the importance of pharmacognosy and the display of collections of drugs and their pharmaceutical derivatives and preparations are appreciated now-a-days, allusion may briefly be made to the late meeting of the British Association for the advancement of science, at Norwich, where the well-known firm of *Gehe & Co.*, in Dresden, Germany, exhibited a comprehensive collection of drugs and pharmaceutical preparations in unusual richness and plentifulness, and which met with general and great approval. At the last meeting of the German Naturalists, in Dresden, in September, the same firm displayed a still more complete and grand exhibition of the entire drug-mar-

ket and of the pharmaceutical and chemical industry to such an extent as there has perhaps never before been seen at a similar exhibition. The drugs, as well as the pharmaceutical preparations thereof, were represented in individual specimens of every description, as well as *en masse* as they occur as merchandise in trade. They were exhibited in every sort and quality side by side with their accidental admixtures and adulterations. Roots, barks, leaves, flowers, fruits, seeds, dyestuffs, resins, gums, essential and fat oils, etc., powders, solid and liquid extracts, and all the usual pharmaceutical preparations, numbered by the thousands, were exhibited in huge quantities and numerous specimens, as, for instanc, ethe varieties Cinchona barks in specimens of 500 to 600 Zoll-pounds, essential oils, resins and gums, and expensive salts by the hundred weight.

PHARMACEUTICAL PREPARATIONS.

Chas. Ellis, Son, & Co., of Philadelphia, exhibited a great variety of sugar-coated pills, of granular salts, solid and fluid extracts, etc.

Bullock & Crenshaw, of Philadelphia, exhibited a collection of excellent specimens sf sugar-coated pills and granules.

Thomas & Twining, of Philadelphia, exhibited a rich assortment of fluid extracts and fine vegetable powders.

W. R. Warner & Co., of Philadelphia, exhibited numerous specimens of sugar-coated pills.

Hance, Griffith, & Co., of Philadelphia, had on exhibition sugar-coated pills, solid and fluid extracts, powders, the fermented juices of officinal fruits, etc.

Henry Thayer, of Cambridgeport, Mass., exhibited a complete assortment of his well-known fluid extracts, sugar-coated pills, and medicinal elixirs.

Edward Parrish, of Philadelphia, exhibited a variety of pharmaceutical preparations, among them the granular salts of Squire in London, Boudault's Pepsine, and its different preparations.

John M. Maisch, of Philadelphia, exhibited fine specimens of artificial fruit essences.

Mellor & Rittenhouse, of Philadelphia, exhibited a complete assortment of their numerous and very good pharmaceutical preparations: among them extracts, granular salts, plasters, paraffin-paper, Seidlitz powder measure, etc.

Howell & Onderdonk, of New York, exhibited their well-known superior medicinal elixirs.

Benj. F. Crew, of Philadelphia, exhibited spread mustard plasters.

E. Fougera, of New York, exhibited Rigelot's as well as Fougera's spread mustard plasters and Boudault's pepsine preparations.

B. O. Wilson, of Boston, exhibited very fine specimens of pressed herbs.

CHEMICALS.

L. Martin & Co., of Philadelphia, exhibited some fifty specimens of chemicals; among them nitrate of silver, acetate of zinc and chromium-alum in fine crystals, citrate of ammonia and bismuth, gallic acid, iron reduced by hydrogen, containing 91·505 per cent. iron, true bisulphite of soda in granules and in crystals, whilst those in trade usually are mixtures of sulphite and bisulphite. Specimens of acetic, hydrochloric, nitric, sulphuric, oxalic, and valerianic acids, as said, chemically pure.

Powers & Weightman, of Philadelphia, exhibited some sixty fine specimens of their best known chemicals: among them sulphate of quinine, sulphate of quinidia, sulphate of morphia—all in fine crystallizations; codeine in large crystals, muriate, sulphate, and nitrate of codeine, narceine and strychnia in large crystals, valerianate of ammonia in crystals, and fine crystals of nitrate of ammonia, of bromide of ammonium, of bichlorate of mercury, and of iodide of cadmium.

Rosengarten & Sons, of Philadelphia, had among their assortment specimens of exceedingly fine crystals of strychnia, of permanganate of potassa, of iron-alum, of nitrate of silver, nitrate of ammonia, hypophosphate of lime, chromic acid, and of piperine.

Bullock & Crenshaw, of Philadelphia, exhibited among their pharmaceutical preparations three specimens of the magnificent

phosphoric acid crystals, from the famed Prussian chemical works at Schœnebeck, near Magdeburg.

Kurlbaum & Co., of Philadelphia, had among their assortment of chemicals and essential oils large and fine crystals of protochloride of mercury.

Dr. Squibb, of Brooklyn, exhibited specimens of the phenol and cressyl alcohols and their derivatives, and preparations for disinfecting purposes, all supplied by Prof. Crace Calvert, of Manchester, England.

Henry Bower, of Philadelphia, exhibited specimens of his superior glycerine and fine crystallizations of potassium ferrocyanide.

Moss & Brueckner, of Philadelphia, exhibited a collection of rare chemicals prepared by Dr. Brueckner.

C. L. Diehl, of Louisville, Ky., exhibited the chlorates and bichlorates of quinia, and of quinidia.

PHARMACEUTICAL APPARATUS.

Edward Parrish, of Philadelphia, exhibited different specimens of his well-known stills for the pharmaceutical laboratory, gas furnaces, suppository, and camphor ice moulds.

Mellor & Rittenhouse, of Philadelphia, exhibited the automatic bottle-filling machine of Cohen's Patent.

Hance & Griffith, of Philadelphia, exhibited several specimens of Hance's percolating and filtering apparatus, which are recommended by practical pharmaceutists.

J. B. Moore, of Philadelphia, exhibited suppository machines and a variety of suppositories of every description.

A. M. Knowston, of Troy, N. Y., exhibited a machine for making suppositories by simple pressure.

J. C. Hand, of Philadelphia, exhibited a large assortment of Savory & Co's cast-iron and enamelled utensils for pharmaceutical use.

Henry Trömner, of Philadelphia, exhibited a choice selection of fine scales.

J. W. Queen & Co., of Philadelphia, exhibited samples of their various microscopes and microscopical implements, well adapted for the use of the pharmaceutist.

T. H. McAllister, of New York, exhibited samples of his cheap household microscope for family instruction.

MINERAL WATER APPARATUS.

John Matthews, of New York, exhibited two excellent specimens from his extensive establishment; a complete apparatus for manufacturing mineral waters; the cylinders were constructed of massive copper of sufficient strength to resist about 500lbs pressure on the square inch; the flanges were of gun metal (copper and zinc), and secured by polished steel bolts. The fountains were covered on their interior surfaces with a silver coating, and all the agitators, screws, and every part coming in contact with the ærated water were likewise protected with silver, in order to avoid any metallic taint of the water. The apparatus was provided with a massive protected tin pump with inverted plunger, and so connected with the fountain and generator as to utilize all the gas, as well as to inject the fountain with water and thus maintain a constant supply with economy of materials.

John Matthews further exhibited one of his splendid Dispensing Coolers made from Serrancolin marble and silver-plated alloy.

John Hindermyer, of Philadelphia, exhibited one of his Generator and Iron Porcelain-lined Fountains, and one of his small but fine Dispensing Coolers, from which he liberally dispensed carbonic acid water with excellent syrups during the days of the meeting. The same manufacturer had also on exhibition A. R. Lawrence and Co's apparatus, illustrating their mode of bottling the "Excelsior Saratoga Spring Water" by hydrostatic pressure.

GENERAL GOODS.

R. H. Watson, of Philadelphia, displayed a tastefully arranged exhibition of arrow root, of different brands of mustard, of most essential oils, essences and pomatums in their original packages; among them a can containing 25 ozs. otto of roses, another can with 30 lbs oil of bergamot, etc., a choice selection of bathing, surgeon, vaginal, and toilet sponges.

M'Keone, Van Haagen, & Co., of Philadelphia, exhibited a full assortment of their fine toilet and family soaps.

B. H. Sleeper, of Philadelphia, exhibited store furniture and a great variety of glass labels for druggists' bottles and drawers, and an assortment of fancy articles.

S. G. Boughton, of Boston, exhibited a fine and extensive collection of druggist's glassware of every description.

Snowden & Brother, of Philadelphia, exhibited a large selection of their superior surgical and dental instruments, trusses and bandages, of pill machines, spatulas, etc.

Gilbert & Co. of Philadelphia, exhibited a choice selection of medicine trunks and medical saddle-bags and chests.

Thomas Perrins, of Philadelphia, exhibited choice aquariums containing a quantity of fishes, mollusks, aquatic plants, and rock work.

C. Janentzky & Co., of Philadelphia, exhibited a sun-dial, constructed by H. Schmeisser, of Berlin, Prussia, which can be set up at any point between 30 and 60° N. lat.

None of the great perfumery manufacturers of Philadelphia thought it worth while to exhibit their choice perfumes, pomatums, cosmetics, and toilet articles.

BOOKS, ETC.

William Wood & Co., of New York, exhibited a few of their latest publications.

E. Fougera, of New York, exhibited the last edition of Dorvault's L' Officine.

John H. Raser, of Reading, Pa., exhibited a series of excellent illustrations of botanical and ornamental plants, drawn and painted by himself in India-ink and water colors.

The *publishers* of Philadelphia omitted to avail themselves of this rare opportunity for displaying the pharmaceutical literature of the day and their newest publications before the meeting of the American pharmaceutists.

The exhibition was arranged carefully and in good taste. Acknowledgment and thanks are due and hereby tendered to all who spared neither time nor trouble and expense to contribute their share to its repletion and success. It is, however, desirable that the wholesale trade may have a greater appreciation of the importance and the retributive value of the exhibitions connected

with the annual meetings of the Pharmaceutical Association, so that they may become, as they ought to be, and as they are in Europe, a gratifying opportunity for the magnates of the wholesale and manufacturing trade to enhance the interest and instructiveness of the exhibitions by a more comprehensive scientific as well as mercantile representation of the drug market, and thereby to impress upon the profession the bearings and the importance of comparative pharmacognosy. They cannot better advance the mutual interest and success, and, at the same time, bear evidence of their superior professional attainments, and of their good will as well as of the standpoint of the drug trade and of pharmacy in our country.

In concluding, it might be a not altogether untimely suggestion to propose that, at future exhibitions, one or two members of the local committee may take charge of the arrangement of the exhibition, and that every exhibitor, at the delivery of his goods, shall furnish a list of them, and brief descriptive notes in case of new drugs or novel apparatus and instruments. It would be expedient to have these officers, or one of them, appointed on the Committee on Specimens. This practice would greatly contribute to a more satisfactory discharge of the duties of said Committee, and to the issuing of a more thorough and instructive report on the exhibition. The practice hitherto in vogue, that the report mainly or entirely rested upon the chairman of the Committee, is inadequate. To make a report on such an exhibition, not only interesting but instructive and significant, and on a more than a mercantile or advertising style, requires knowledge of the subject, time, study, and devotion. The more extensive, interesting and valuable, these exhibitions at our annual meetings will become, the more will the necessity increase to organize and arrange them methodically, so as to render them a superior medium of instruction, and a periodical opportunity for the representative display of our drug market and to devote to them a greater appreciation and a more thorough and critical report.

DR. FREDERICK HOFFMAN.
Chairman of the Committee.

NEW YORK, November 2d, 1868.

SPECIAL REPORTS AND ESSAYS.

ON COMMERCIAL HYDRARGYRUM CUM CRETA.

BY JOSEPH P. REMINGTON, OF BROOKLYN, N. Y.

QUERY 1st.—What is the quality, proportion of oxide of mercury &c. in Hydrargyrum cum Creta of commerce, selecting samples recently prepared by manufacturers and others from the dispensing bottles of pharmacists?

Mercury with chalk has lately fallen into disfavor with the medical profession, on account of its variable quality as met with in commerce; and it follows as a natural sequence that the preparation must have a variable action on the economy. Many physicians indeed have given up its use entirely, because vomiting and gastric irritation have been produced, rather than its characteristic mild effects; this is attributed to the oxidation of the mercury.

Several processes have been proposed for its preparation, the oldest one being that of simple trituration. Then came a process for trituration with resin; after the mercury was finely divided the resin was dissolved out with alcohol; this process originated with Dr. Stewart, of Baltimore. Then one in which the material used to facilitate the division of the mercury was starch moistened with water; this process was used by Dr. Mettauer, of Virginia; and lastly, the process of succussion or shaking, first suggested by Mr. W. Hewson, of Augusta, Ga.

The processes most used by manufacturers are the simple trituration and the succussion processes. The first is believed to be most in vogue, and is objectionable principally on account of the time required to thoroughly divide the mercury, and the oxidation caused by its prolonged exposure to the atmosphere. The last process has been successfully carried out on the large

scale by the aid of a machine contrived for the purpose by Dr. E. R. Squibb.

This machine consists of two frames, each capable of holding securely a bottle of the capacity of one gallon, moved up and down in guides by means of connecting rods and a crank shaft and pulley.

A full description, with a drawing of the machine, may be found in the published Proceedings of this Association for 1859.

Ten pounds of mercury and two pounds of honey are introduced into each bottle, and the mixture shaken for six hours; thirty-one pounds of precipitated chalk is now made into a uniform paste with four and three-quarter gallons of water, and the shaken mercury is added to the mixture of chalk and water and thoroughly stirred; it is now transferred to a muslin strainer, drained, dried and powdered. The advantage possessed by this process is protection from oxidation, the honey, which was originally added to facilitate the division, envelops the globules, protects them as soon as divided, and the small quantity left in the preparation effectually shields the mercury from change, as will be shown by some experiments further on.

For the purpose of testing the quality of the preparations formed in commerce, samples were obtained from all of the known manufacturers in this country, and one sample made by an English manufacturer, from the San Francisco market, which is principally supplied with the English product. The samples were from Powers and Weightman, Rosengarten & Sons, Charles Ellis Son & Co., Charles Pfizer & Co., Herrings & Co., and Dr. E. R. Squibb, and three samples from the dispensing bottles of pharmacists, in Philadelphia and New York. The process of assay adopted was that proposed by Dr. E. R. Squibb, and published in the American Journal of Pharmacy for Sept., 1857.

Ten grammes of the powder was put in a six ounce beaker and 75 c. c. of distilled water added and mixed with the powder; 40 c. c. of pure acetic acid was slowly added at intervals with stirring. Considerable care is necessary to prevent the mixture from frothing over, hence the expedient of first mixing the powder with water; the carbonic acid is liberated more readily and the bubbles of gas, on account of having a thinner film surround-

ing them, are broken by the stirrer, and the gas set free with much more ease than when the acetic acid is digested alone with the powder, and a dense solution of acetate of lime formed that envelops the escaping bubbles, which are difficult to break, and if not broken the mixture froths over, and the assay is, of course, lost. The mercury was allowed to subside and the supernatant liquid poured on to a small tared filter prepared for it, the mercury being poured on last; the filter was then washed, dried, and weighed. On examining the contents of the filter after being dried, considerable matter (which was insoluble in acetic acid) was noticed, supposed to be silica; on this account the weight of the contents of the filter would not represent the quantity of metallic mercury in the preparation; the filter was therefore introduced into a tube, closed at one end; the other end of the tube was then drawn out, bent and broken off; it was so adjusted that the orifice just dipped in water contained in a short test-tube. Heat was now applied until globules ceased to come over; the tube was then heated to redness throughout, and if any globules were noticed at the end of the tube after cooling, they were rinsed through with a little alcohol. The distilled mercury was washed with alcohol to free it from empyreumatic products, dried and weighed.

The filtrate was now highly diluted and hydrochloric acid added in slight excess; the sub-chloride formed was collected on a tared filter, dried and weighed. Sulphuretted hydrogen was conducted through the filtrate from this precipitate until it was saturated; the resulting sulphide was collected on a tared filter, washed, dried at 212°, and weighed. The amount of oxides present was now easily calculated from the weight of the precipitates. Each of the samples was tested for sugar by Fehling's method (vide Fres. Quan. Analysis), but one sample contained traces of sugar.

Under the microscope the difference in the mode of preparation of the samples could be very distinctly seen. In the samples made by the trituration process the chalk was observed to be in a much finer state of division, and the globules, especially in the specimens containing most oxide, were observed to be in irregular coalescent masses, with particles of chalk intermixed.

Globules were observed in some of the samples coated with a red substance, and on others a black powder was noticed; this would correspond to the red and black oxides. In the mercury and chalk made by the succussion process the globules were spherical, with clean, bright surfaces, the largest of these globules measuring, by the micrometer, $\frac{1}{100}$ of a millimetre; the globules in the preparation made by trituration were somewhat smaller, the largest measuring from $\frac{1}{200}$ to $\frac{1}{300}$ of a millimetre.

The results of the investigations are tabulated below.

SAMPLE.	PERCENTAGE OF Metallic Mercury.	Suboxide of Merc.	Oxide of mercury.	Sugar.
No 1. From a manufacturer in Phila.	35·91	0·008	0·372	none
No. 2. " " " " "	35·01	0·08	0·465	"
No. 3. " " dispensing bottle in "	17·37	0·08	14·273	"
No. 4. " " manufacturer " "	32·81	0·01	0·265	"
No. 5. " " dispensing bottle " "	12·41	0·11	25·69	"
No. 6. made in England	29·01	0·03	0·50	"
No. 7. " by succussion	36·30	none	A trace, producing brown discoloration on addition of H.S.	a trace
No. 8. From a manufacturer in N. Y.	29.82	0·01	0·838	none
No. 9. " " dispensing bottle in "	30·32	0.05	1·416	"

It will be noticed that two samples obtained from dispensing bottles contained respectively 14·2 per cent. and 25·6 per cent. of oxide of mercury. As the quantity of mercury originally present could not have been more than 37·5 per cent., (the officinal quantity), it will be seen that over one-third of the mercury in one, and nearly two-thirds in the other had been oxidized. The samples obtained from the manufacturers contained, in comparison, but little oxide, and from this it is inferred that the change takes place in the dispensing bottle. An expected sample of Hydrargyrum cum Creta made by Dr. Stewart's process was not received, but the disappointment was rendered lighter by the fact that a sample assayed by Prof. Procter, when it was only eighteen months old, gave 22·8 per cent of oxide. This process, however, is seldom if ever used. Three samples of Hydrargyrum cum Creta made by the succussion process were taken, soon after accepting this query, for the following experiment: In one, the powder was simply wrapped in paper, and

the package allowed to lie in an exposed place, with access to the sun's rays, heat, moisture, &c. Another portion was put in a bottle and stopped loosely with a cork stopper, as an ordinary pharmacist would be likely to keep it. A third was put in a bottle and the cork sealed, and the bottle secluded from light. At the expiration of eleven months these three samples were examined chemically, and with the aid of the microscope, and no appreciable difference could be detected; this result is attributed to the protecting influence of the small proportion of honey left in the preparation.

Four samples are presented to the Association for inspection. Sample No. 1 is a very fair specimen made by the trituration process; it contains nearly the full amount of mercury, and but ·008 per cent. of suboxide and ·372 per cent. of oxide, and has about the normal color. Sample No. 2 shows the effect of a very slight proportion of suboxide of mercury on the color; it differs very slightly in composition from the first, but contains ·08 per cent. of suboxide. Sample No. 5 is a very bad specimen; the pinkish tinge is very well marked, as it contains 25·6 per cent. of oxide. Sample No. 7 was made by succussion, and shows the characteristic color of a preparation so made—being much lighter in color—containing no trace of suboxide. These four samples are representatives of Hydrargyrum cum Creta as found in commerce.

Brooklyn, Sept. 8th, 1868.

ON ACIDUM HYDRIODICUM DILUTUM.

BY JOHN A. DUNN.

Query 2d.—Is the officinal process for Acidum Hydriodicum the best that can be practically suggested?

The officinal process, when managed with skill, yields a good product, but in practice, besides being very troublesome, it has at least one great objection, and that is the use of sulphuretted hydrogen in its preparation. The dispensing pharmacist does not want to contaminate the atmosphere of his store with this odor if it can be avoided. In order to avoid this, and simplify the process, the writer determined to make some experiments

with Buchanan's method, hoping by some slight modification to obtain a good and reliable product, and one that would represent that of the U. S. Pharmacopœia in the proportion of iodine. The chief objection to Buchanan's process, in the original form, is that it invariably deposits crystals of bitartrate of potassa on standing; this the writer believes he has obviated, at least to a practically useful extent, and as the results of his experiments in that direction, offers the following modified process:

Take of Iodide of Potassium 209¼ grs.
Tartaric Acid, in crystals, 190¼ grs.

Dissolve the iodide of potassium in three fluidrachms of distilled water, and the tartaric acid in the same quantity, and filter if necessary; mix the solutions, and set the mixture into ice cold water, allow it to stand for one hour, then filter, and make up the measure to two fluid-ounces.

The formula is based on actual calculation, and each fluidrachm of the solution of the acid represents ten grains of iodine.

Hydriodic acid is readily obtained by the various methods given for its preparation. The greatest difficulty is to preserve it, and it was found impossible to do this without recourse to chemical means. An article on syrupus ferri iodidi, published in the American Journal of Pharmacy for March, 1868, first suggested the use of hyposulphite of soda for this purpose; it was tried, and found to answer very well. Its use in such small quantities is supposed to be unobjectionable, since it can have no influence upon the medicinal application of the acid. A solution is made containing sixty grains of hyposulphite of soda to the fluidounce of distilled water; of this, five drops was found sufficient to restore a two ounce sample of highly-colored acid, and to keep it so to the present time, a space of three months. How much less of this solution would preserve a newly made acid from change in keeping could not be determined for want of time.

This query may, therefore, be answered in the judgment and experience of the writer, that the officinal process is not the best for medicinal uses, though it may be the best for more strictly chemical purposes, and that a slight modification of

the process of Dr. Buchanan of Glasgow is better; and further, that the acid may be either protected or restored by the use of one-third of a grain of crystallized hyposulphite of soda, or less, to the fluid-ounce, provided this be considered unobjectionable.

Brooklyn, Sept. 5th, 1868.

ON THE DEPOSIT IN FLUID EXTRACT OF CLOVES.

BY J. F. LLEWELLYN.

QUERY 8th.—What is the nature of the deposit in fluid extract of Cloves on long standing, made by the process of Prof. Procter, reported to this Association? Is it present in the drug, or the result of the oxidation of the oil?

In order to determine whether this deposit exists in the drug or results from oxidation of the oil, I obtained the cloves from the inner portion of a mat opened that day, ground and percolated them the same day. The weather becoming very cold, within a week a deposit of about twenty grains was separated from the percolate from four ounces of the drug; as there was no room for the oil to oxidize, it may safely be inferred that this deposit exists in the drug.

Repeated efforts to sublime it failed, but, when continuously heated, long silky crystals effloresced upon the surface.

Heated to destructive distillation in the bulb of an arsenical tube, there was found a waxy substance in the tube soft and sticky, almost free from odor, having an empyreumatic taste, but free from the warmth of oil of cloves.

The precipitate boiled in solut. carb. soda dissolved but slightly and with difficulty; it would not dissolve when treated in the same manner with water of ammonia.

It dissolved but little in cold or boiling muriatic or nitric acids, whether concentrated or diluted. Some crystals were obtained from the muriatic acid solution having a garlicky taste, like mustard seed, free from its pungency. These crystals deliquesced in a few minutes after being dried by heat.

The deposit itself is tasteless, and seems to have no medical value, as three one grain doses, taken at intervals of an hour,

and followed in fifteen minutes by one dose of three grains, giving thus six grains in two hours and fifteen minutes, had no perceptible effect.

As my experiments seem to have determined that this deposit exists in the drug and has no medical value, I carried the investigation no farther.

Louisville, Ky., Sept. 2d., 1868.

ON GELSEMINIA.

BY C. L. EBERLE.

QUERY 11th.—Is the so-called "gelseminia" a neutral or alkaloid principle? Does it exist in the leaves and in the wood of the root, or only in the bark? And does it represent the activity of the plant?

The root of Gelsemium sempervirens has for a considerable time been employed in the medical practice of portions of our country as a nervous and arterial sedative—in large doses occasioning dizziness, dimness of vision, dilated pupil and universal prostration, reducing the force and frequency of the pulse and the frequency of respiration, and producing insensibility to pain, but without stupor or delirium.

It is, therefore, exceedingly potent, and I am cognizant of at least two cases of poisoning by its unintentional use—one resulting in the death of the individual, the other recovering only upon the prompt administration of an antidote.

During the past twenty years various writers have commented upon its uses and effects in the different medical journals of the day.

So far as I can learn no published account of the existence of an alkaloid, covering the active principle of Gelsemium sempervirens exists, if I may except a reference to its appearance by Mr. Henry Kollock, Amer. Journ. Pharm. xxvi, 203, which was not elaborated. Yet I have received *private* statements of its presence and production, and have been privileged to examine an impure sample of the so-called "gelseminia," prepared by Prof. Maisch, which gave decided alkaline reaction with appropriate tests.

This gelseminia was produced by the following process:

An alcoholic tincture was evaporated to small bulk, diluted with water to precipitate resin, filtered, precipitated with tannic acid, treated with hydrated oxide of lead, exhausted by alcohol and evaporated; before dryness ether was added, and upon spontaneous evaporation greenish red crystals mixed with resinous matter resulted.

With a view to properly determine this query, early arrangements were made to procure from Albany, State of Georgia, through Messrs. Welsh, a supply of Gelsemium sempervirens, which, being collected at the proper period, arrived during the spring of the present year. Upon examination the sack forwarded contained portions of the entire plant, the gross weight of which was six av. pounds, 13 ozs. being roots, 13½ ozs. leaves, the remainder vines, and were shipped in this form in consequence of a misunderstanding, my purpose requiring but the roots and leaves.

The roots being prepared for percolation, were exhausted with strong alcohol, the tincture evaporated to the measure of a few fluidounces (3), water added carefully to precipitate a portion of the resin. A green fixed oil removed from the surface of the liquid with bibulous paper by absorption, filtered, a solution of tannic acid added until a precipitate was no longer produced; the mixture allowed to settle, poured from the precipitate, filtered; the filters preserved and dried, cut into small pieces, and with the precipitate aforementioned dried, powdered and digested with hydrated sesquioxide of iron. This was dried, exhausted by ether, and the etherial solution evaporated spontaneously.

The result to the naked eye exhibited an amorphous mass, but with a glass of ordinary power revealed groupings of acicular crystals, insoluble in water, and whose solution in acid by the aid of heat was not affected by either iodohydrargyrate of potassium or phosphomolybdic acid.

On the platinum foil heated to redness no trace of a stain was shown.

Placed upon the tongue in minute quantity a slight bitterness was manifested, and, after an interval, followed by a decided acrimony, extending to the throat, remaining for several hours;

this acrimony, however, is probably due to the presence of a slight quantity of a principle resulting from the next experiment. The solution in ether having failed to develope an alkaline principle, strong alcohol was poured through the mass just treated with ether, the same being freed from its traces.

Upon evaporation, groups of crystals formed, a portion of which I here exhibit. There is a slight resinous impurity also present, but not sufficient in amount to embarass the complete exhibition of the crystalline structure. The solution is simply opalescent by reflected light.

This result gives the characteristic reaction with Mayer's test as well as phosphomolybdic acid, and restores the blue color of litmus paper, which has been slightly reddened by fumes of hydrochloric acid.

Heated on platinum foil to redness it inflames and is dissipated with scarcely a trace of stain.

One-eighth of a grain troy administered to a young cat produced the symptomatic effects ascribed to an over-dose of the drug, accompanied by much frothing at the mouth, and resulting in its death. An equal amount of the neutral product similarly administered to a kitten caused no manifest inconvenience. It is therefore to be presumed the principle soluble in alcohol, and which is also dissolved by diluted alcohol and hot water, is the representative principle of the drug, and which, if isolated in quantity, would prove to be its equal in therapeutic power.

I am pleased to be able to state that arrangements are being made to experiment with a large quantity of the bark of the root by one of our most competent associates; and the Association may hope to have a full account of the therapeutic action of this alkaloid at a future meeting—probably the next.

The wood of the root can be safely asserted, from careful experiment, to contain none of the alkaloid.

The full amount of leaves in my possession (13½ ozs.) were powdered and percolated by strong alcohol to exhaustion, concentrated, strongly acidulated by acetic acid, allowed to rest for a day, filtered and evaporated to a syrupy consistence by gentle heat. To this, alcohol containing one-tenth part of sulphuric acid was added, and digested.

This was neutralized by lime in slight excess, concentrated and allowed to rest, diluted with water and filtered; the precipitate was washed with diluted alcohol, and the liquid decolorized with animal charcoal, filtered and evaporated by water bath to dryness. The residue powdered, exhausted by alcohol with animal charcoal, filtered and evaporated spontaneously. This manipulation should exhibit the presence of the alkaloid in the leaf, should any exist. I have not entirely finished my examination of it, but will communicate to Prof. Maisch the result of the investigation.

ON THE MEANS OF IMPROVEMENT FOR YOUNG PHARMACISTS.

BY PROF. EDWARD PARRISH.

QUERY 17th.—"What is the best scheme of Practical Instruction for young men preparing for the business of the Pharmacist, aside from the necessary service in the shop, with special view to those who are unable to attend a College of Pharmacy?"

The class of young men referred to in this Query as "unable to attend a college of pharmacy," must, it seems to me, be very small, as even those compelled by adverse circumstances to struggle with poverty during minority, may surely acquire the small amount required to take a college course, after passing through their apprenticeship and receiving the salary of clerks for a few years. Many such annually seek the colleges, impressed with the conviction that it is only by thus completing their professional training, in a regularly chartered institution, that they can properly go before the public as experts. It would be most desirable, indeed, that none but experts should be allowed to carry a diploma from our colleges, but our present systems of instruction are too incomplete, as yet, and many of our students enter them with far too little previous mental training to insure such thoroughness as every well wisher of our profession must desire.

The leading features in the professional training of a pharmacist are such as pertain to almost all pursuits. Patient industry and application, and a real desire to learn, well conceived and

thoroughly maintained throughout those periods of life most fitted for the acquisition of knowledge and skill, will insure success.

In place of any detailed scheme of practical instruction we may best consider, under three general heads, the obvious means of improvement within reach of every apprentice in a drug store, however indifferent to his interests his employer may be and however restricted his means of improvement.

First. Observation.—The cultivation of the senses of sight, touch, taste and smell is of prime importance to the pharmacist, as it is indeed to every dealer in merchandize. The well trained dry goods merchant is so accustomed to every shade of color and surface, that he will detect differences in cloths, or calicos, or silks quite unobserved by the eye of one not accustomed to such nice discrimination. It is said that in the great marts for the wine trade, professional tasters are employed, at large salaries, whose palates are so cultivated by use that they can not only distinguish any one kind of wine from another, but can designate almost the precise age of a specimen, and with certainty guard their employers against the least adulteration or sophistication. These instances show what may be attained by cultivating the senses, so obvious a branch of professional education, that no argument is needed to show its necessity to the young man who would not only know drugs and preparations by their sensible properties, but also learn to detect every appearance indicating their variance from standard qualities. In this connection I would allude to an aid to the eye, which commends itself to all who can command it—the microscope. By this little instrument, now so wonderfully perfected, the intricacies of structure are so laid open as to increase immensely the ability of scrutiny by the eye. A student's microscope can be purchased for $8.00, which will not only serve an admirable practical purpose in examining drugs, but will afford an inexhaustible fund of entertainment and instruction during intervals of otherwise unemployed time.

Second. Experiment.—The little word *try* conveys a lesson which every one should learn at the very outset of his course. Every prescription compounded, every preparation made should

indeed be regarded as an experiment; the circumstances of any two manipulations cannot be precisely the same, the results must therefore vary more or less, and lessons of deep scientific import may often be learned by the attentive manipulator, in the course of his daily duties. It is, however, by premeditated and well directed experiments that practical knowledge is best acquired. Questions are constantly presenting themselves to the inquisitive pharmacist, which must be systematically approached by a series of tests so intelligently applied, that their aggregate results will either furnish an answer or prove our inability to furnish one.

The characteristics of the drugs we daily handle should not only be the subject of careful physical scrutiny, but of chemical tests. Our Pharmacopœia indicates many of these so exactly, and in language so devoid of technicalities, that the merest tyro may practice them, and with apparatus so simple and easily attainable, that no excuse is left for neglecting this obvious means of improvement.

Finally. Reading.—Blessed agencies are good books in every scheme of education. What wonderful facilities for improvement do these furnish in the present day, as compared with any previous period.

In chemistry and pharmacy, notwithstanding the immense increase of the domain of these sciences, ample text books have brought the leading principles within the reach of all, while the U. S. Dispensatory, found in the humblest drug store, is the depository of such stores of knowledge, so conveniently arranged, that it may well be the companion of every student, till he has at least once gone over its pages; if possible, having one more advanced in its study to examine him upon its leading facts, until they are as much as may be stamped upon his memory. In what I have thus sketched in regard to self education for the duties of the shop and laboratory, I must not be understood as ignoring the importance of an experienced and sympathising preceptor to aid, encourage and stimulate the student—a man who has taken an apprentice not alone to exact from him four or five years of drudgery and toil, but who acknowledges the obligation to develop in him those facilities which will make him useful, successful and honorable in his profession. The student

who has fallen into the hands of such a master, has a motive to which very many of our young men are strangers. To him whose hard lot is to work sixteen hours a day, compelled to steal from sleep and from the usual intervals of recreation the hours necessary for experiment and study, and to unravel the difficulties of his novitiate by his own wits, or those of his fellow apprentices, I would suggest the solace of society. Why might not six or eight young men, engaged in drug stores in the same town, organize for improvement in their business? Let them unite their several pieces of apparatus into a practical laboratory, combine their books into a library, and throw their talents and acquired knowledge into a common stock. Good times they would have on long winter evenings,—more profitable discussions than those of the neighboring bar-room,—their friendships would be cemented by kindred motives and pursuits, and ennobled by the glorious consciousness of adding to their own and each other's means of permanent enjoyment and usefulness.

ON THE MORPHIA STRENGTH OF COMMERCIAL OPIUM.

BY P. W. BEDFORD.

QUERY 18.—What is the morphia strength of commercial powdered opium (a number of samples); and what is the most ready means of determining it?

In accepting this query the writer continues a subject on which he presented a paper to this Association some eight years ago.

During the past year he has examined eight specimens of powdered opium, purchased from wholesale houses in our city.

The results have been as follows:

Sample	No.	1	contained	9·40	per cent. morphia.
"	"	2	"	9·01	" "
"	"	3	"	6·33	" "
"	"	4	"	8·10	" "
"	"	5	"	7·05	" "
"	"	6	"	6·75	" "
"	"	7	"	6·00	" "
"	"	8	"	6·25	" "

The quantities operated upon were ten and twenty grammes, and two or three such portions were taken of each sample of opium. The process used was that officinal in the U. S. P.

Recently in conversation with Prof. F. F. Mayer, he stated that the process did not yield accurate results, and suggested a process which he has used in such analysis for some time past. Since that conversation I have not been sufficiently at leisure to take up the subject, and at my request Prof. Mayer examined two specimens which I procured for him from two of our best wholesale houses.

No. 1 contained 13·60 per cent. morphia.
" 2 " 9·04 " "

To the second portion of the query, "what is the most ready means of determining it?" I am not now prepared to give a reply satisfactory to myself. The doubts thrown on my mind as to the perfect reliability of the process of the U. S. P. recently, by conversations with those more familiar with the subject, and the limited time at my disposal, have decided me to leave this portion of the query for further investigation, and another year I will continue the subject.

ON THE REMOVAL OF ODOROUS COMPOUNDS FROM ALCOHOL BY PERMANGANATES.

BY GEORGE F. H. MARKOE.

QUERY 22.—What are the practical reactions between the permanganates and alcohol of various strengths and degrees of cleanness; and how far can such reactions be made available for producing deodorized alcohol, cologne spirit, or clean alcohol, upon a small scale, with special reference to the alcohol recovered from fluid extracts, and other Galenical preparations?

It is a well known fact that the permanganates are among the most powerful oxidizing agents at the command of the chemist; and the ease with which they furnish nascent oxygen when merely placed in contact with organic matter, has led to their extensive employment as disinfectants and deodorants. The power they possess of destroying disagreeable odors suggested their employment in the purification of alcohol, and some years

ago a patent was granted to Mr. Atwood for a process in which permanganate of potassa was the agent used in producing a deodorized or cologne spirit, which is well known to pharmacists as Atwood's alcohol. The article used by Atwood as a purifier is not the true permanganate of potassa (KO,Mn_2O_7), but the so-called commercial permanganate of potassa, which is in reality manganate of potassa (KO,MnO_3), a much less effective oxidizing agent than the permanganate of potassa.

In the following experiments, the writer, in every instance but one, used the officinal permanganate of potassa; and the materials worked upon were unclean alcohols of various strengths, obtained in concentrating the percolates in the preparation of some fluid extracts and syrups. Many more experiments were performed than those detailed in this paper, but it is deemed sufficient to give the results of nine experiments, together with samples of the products. One of Neynaber's Pharmaceutical Steam Stills, of one gallon capacity, was employed for the distillations, and five pints of unclean alcohol were used in each rectification, with 100 grs. of permanganate of potassa.

Exp. 1.—Five pints of alcohol were obtained in following the officinal process for the preparation of comp. syrup of sarsaparilla. By the accidental passage of a small part of the contents of the still during the last part of the distillation, the distillate was rendered quite unclean and tinged with a brown color; it contained 70 per cent. of alcohol, and was strongly contaminated with the mingled odors of Rio Negro sarsaparilla, guaiacum wood, rose, Alexandria senna and licorice root.

Exp. 2.—The five pints of impure alcohol obtained in Exp. 1 were re-distilled with 100 grs. of permanganate of potassa; the distillation was stopped when four and one-half pints of distillate had collected in the receiver. This distillate contained 84 per cent. of alcohol, was clear, colorless, and possessed a faint odor of the sarsaparilla compound. It certainly was clean enough to be used in many Galenical preparations. The writer has often seen poorer samples of alcohol in the market.

Exp. 3.—Five pints of impure alcohol were obtained, half from fl. ext. senna, half from fl. ext. senega. The mixture contained

85 per cent. (Tralles) of alcohol; had a very decided odor of senna.

Exp. 4.—The above mixture was re-distilled with 100 grs. of permanganate of potassa previously dissolved in f℥i of water. The distillation was stopped when four and three-fourths pints of distillate were obtained; this was clear, colorless, contained 84 per cent. of alcohol, and was to a very great extent deprived of the odor of senna; more clean than No. 2.

Exp. 5.—Five pints of unclean alcohol of 67 per cent. proof, from fl. ext. scullcap; odor strong of scullcap.

Exp. 6.—No. 5, with 100 grs. of permanganate of potassa, was re-distilled, and distillation stopped when four pints of distillate had been obtained. This was clear, bright, 77 per cent. alcohol, and much improved by the treatment with permanganate.

Exp. 7.—Five pints of alcohol from fl. ext. wild cherry, with 100 grs. permanganate of potassa. Product very clean.

Exp. 8.—Four fluid-ounces of tinct. of buchu were treated with 200 grs. of permanganate of potassa, dissolved in water and filtered. By this treatment it was in a great measure deprived of odor and also of color, as may be seen by comparing the samples of the tincture before and after the treatment with permanganate.

Exp. 9.—Three pints of impure alcohol recovered from the tincture of buchu used in No. 8 were re-distilled with 500 grs. of manganate of potassa (common permanganate of commerce) and two and one-half pints of distillate obtained. This smelled of the buchu nearly as much as the tincture that was simply treated with permanganate without distillation.

From these experiments the writer concludes that the rectification of unclean alcohol with small quantities of permanganate of potassa is clearly an advantage, as in nearly every case it partially removes the objectionable odor, and in quite a number of instances gives an alcohol clean enough for very many pharmaceutical purposes. None of the experiments made by the writer gave anything like a fine deodorized alcohol suitable for use in perfumery or for delicate preparations, nor does he think that

such an alcohol can be produced on the small scale, with the apparatus at the command of the pharmacist, and our present knowledge of the subject.

The reaction of permanganates with organic matter is due to the decomposition of the permanganic acid (Mn_2O_7), which is resolved into hydrated binoxide of manganese, and oxygen,— $Mn_2O_7 = 2(Mn O_2) + 3O$. The oxygen being in a nascent state, instantly combines with the organic matters present and destroys them. In the case of unclean alcohol, the permanganic acid seems first to destroy the odorous principles present, and, if in sufficient excess, to then destroy the alcohol.

ON VALERIANIC ACID.

BY FREDERICK C. MUSSGILLER, OF BROOKLYN.

QUERY 24.—The U. S. Pharmacopœia defines valerianic acid as having a sp. gr. 0·933. Is this sufficiently accurate for practical purposes? and if not, what standard should be adopted?

The acid of the Pharmacopœia is the monohydrated, or that containing 1 eq. water. Wittstein makes the specific gravity of this acid 0·967, Fowne's 0·937 and Delffs' 0·935. The last mentioned specific gravity was readily obtained by the writer, and was found to answer all the officinal purposes for which it is required, namely, the preparation of valerianate of ammonia, and valerianate of quinia. There is probably some error in the officinal process. The Pharmacopœia, in the preparation of the acid, rejects the distillate so long as it has a specific gravity above 0·940. But it is found by actual experiment that the specific gravity of the acid can never be reduced to 0·933 so long as that of 0·940 is retained, and the writer, in a series of carefully conducted experiments, never succeeded in getting the acid lighter than 0·935 by the officinal process and with ordinary sulphuric acid. He would therefore suggest that, at the next revision of the U. S. Pharmacopœia, the s. g. 0·935 be adopted as the standard, and would also suggest some slight modifications in the details of the officinal process. That successfully followed by the writer is as follows:

Acidum valerianicum—Valerianic Acid.

Take of valerianate of soda in coarse powder, eight troyounces.
Sulphuric acid,
Distilled water, each a sufficient quantity.

To the valerianate of soda add, first, three fluidounces of distilled water, and then three troyounces and a half of sulphuric acid. Mix them thoroughly, and from the mixture, after standing, separate the lighter oily liquid. Pour this into a tall narrow glass vessel and drop sulphuric acid into it without agitation until its specific gravity is reduced to 0·945. Separate the lighter liquid from the sulphuric acid, introduce into a retort, and distill nearly to dryness, rejecting all the distillate which comes over before the temperature in the retort has reached 342°. The rejected portion of the distillate, after being treated with sulphuric acid in the same manner as the first, may be returned to the retort after the first is all distilled off, and the distillation repeated as before. In using the sulphuric acid for dehydration, it is best to have the valerianic acid in a tall narrow glass cylinder or hydrometer jar, then add the sulphuric acid gradually drop by drop, so long as it does not dissolve in the valerianic acid, care being taken *not* to shake or agitate the vessel during the process. The sulphuric acid, as it drops into the valerianic acid, breaks into little globules and falls like fine rain or mist to the bottom. A point is, however, reached when the two acids unite, and this is the limit. After standing a few moments, much of the partially dehydrated acid can be poured off into the retort for distillation, and the remainder may be separated by means of a separating funnel. In manipulating with varying proportions of sulphuric acid for the dehydration, the best proportions appeared to be about 360 grains of the officinal sulphuric acid, and this was applied to about 6½ fluidounces of the valerianic acid (s. g. 0·958) to be dehydrated, or the average quantity obtained by the officinal formula. The writer, however, found it more convenient to use four times the quantity of the officinal formula, and upon such proportions are his general results based. In the last experiment made with four times the officinal quantity, great care was taken to observe the boiling point of the acid, and its specific gravity at the various temperatures during the distilla-

tion; each fluidounce, as it dropped from the condenser, was set aside, the specific gravity taken and the temperature at which it came over noted. From the table given below it will be seen that only three fluidounces out of twenty-four were obtained of a s. g. 0·933, ten fluidounces had a s. g. 0·9355, which, when mixed with the three fluidounces of s. g. 0·933, made thirteen fluidounces of s. g. 0·935. The first nine fluidounces that came over were set aside, again treated with sulphuric acid until its specific gravity was reduced to 0·945, returned to the retort, redistilled, and by still another fractional treatment with sulphuric acid and distillation six fluidounces more of valerianic acid of the s. g. 0·935 were obtained from it, making nineteen fluidounces in all, or a loss of five fluidounces in the process. The writer submits herewith three specimens of valerianate of ammonia, prepared from acids of different degrees of density, as marked on the labels, including a specimen prepared from acid of s. g. 0·933. A careful comparison of them appears to confirm the experience obtained in these investigations and in previous practice on a large scale, indicating that for the only officinal use to which the acid is applied a higher specific gravity answers equally well and saves much acid, time and labor.

In conclusion the writer presents a table showing the specific gravity of the acid as obtained at different temperatures.

Successive fluidounces as distilled.	Boiling Point.	Specific gravity.	Successive fluidounces as distilled.	Boiling Point.	Specific gravity.
1.	*280° to 328°	0·959	12.	344° to 345°	0·936
2.	328° " 330°	0·952	13.	345°	0·936
3.	330° " 333°	0·948	14.	345° " 346°	0·935
4.	333° " 344°	0·947	15.	346°	0·934
5.	334° " 337°	0·944	16.	346° " 347°	0·934
6.	337° " 339°	0·943	17.	347° " 348°	0·934
7.	339° " 340°	0·941	18.	348°	0·934
8.	340° " 342°	0·940	19.	348° " 350°	0·934
9.	342° " 343°	0·938	20.	350° " 351°	0·933
10.	343° " 344°	0·937	21.	351° " 352°	0·933
11.	344°	0·937	22.	352° " 354°	0·933

* The distillation below 300° takes place without boiling.

The query is therefore answered by an opinion that the specific gravity prescribed by the Pharmacopœia for its valerianic acid cannot be obtained by its process, and is lower than necessary; and that 0·935 would be far more practical and economical, and the results equally good.

BROOKLYN, Sept., 1868.

ON SYRUPUS LACTUCARII, U. S. P.

BY P. W. BEDFORD.

QUERY 29.—Can any improvement be suggested in Syrupus lactucarii, U. S. P. 1860?

The syrup of lactucarium prepared by the officinal process, while a good remedy, is an unsightly preparation. Can the finished syrup be as efficacious, and yet more pleasing to the senses? Before speaking of the syrup, let us inquire into the article itself. The variety of lactucarium now found in the stores is that known as German; the English I have not been able to find whenever I have inquired for it. This German variety is now worth from $9.00 to $10.00 per pound. According to experiments of E. Parrish and W. C. Bakes (Am. Journ. Pharm. xxxii, 227), this variety yields 36 per cent. of extract when exhausted with diluted alcohol, the English variety yielding 44 per cent. Diluted alcohol is conceded to be the best solvent of the active principles of the drug, and all the published formulæ for the last fifteen years have used this menstruum for the preliminary portion of the process. It requires from eight to ten fluid parts to exhaust the drug. On evaporation of the spirit it deposits a large portion of the soluble matter, increasing in bulk as the liquid portion is dissipated; but on addition of a small portion of alcohol to restore it to the strength of diluted alcohol, it is again restored to perfect solution.

The officinal process, after exhausting the lactucarium (one ounce to make half a pint of tincture), directs the liquid to be evaporated to two ounces, and then added to fourteen ounces of simple syrup.

The undissolved portion is held partly in suspension, and in part deposited, requiring shaking to mix it.

The resulting syrup is cloudy with a yellow-red color, unpleasant to the eye, and not very acceptable to the taste. If, when the liquid has been evaporated to the quantity ordered, a little alcohol is added, a perfect solution is effected of a dark transparent appearance; but when sufficient simple syrup is added to make it the requisite strength, it has the same general appearance of the officinal syrup.

The experiments I made were to obtain a transparent syrup which would retain the virtues of the lactucarium as fully as possible. The process adopted in the U. S. P. 1860 for syrup of tolu seems, with a slight modification, to meet the case. I would suggest the following formula:

Lactucarium, one troyounce.
Diluted Alcohol, a sufficient quantity.
Carbonate of Magnesia, sixty grains.
Sugar, fourteeen troyounces.
Water, four fluidounces.
Orange-flower Water, two fluidounces.

Rub the lactucarium with a sufficient quantity of diluted alcohol to make a smooth paste, transfer to a conical percolator, adding enough diluted alcohol to obtain half a pint of the tincture. Into a mortar place the carbonate of magnesia and one troy-ounce of sugar, add the tincture and four ounces of water, filter, evaporate at 160° F. to six fluidounces, add the balance of the sugar, and when nearly cool pour into a bottle containing the orange-flower water, and make up with water if necessary to the bulk of one pint.

This syrup has a dark transparent appearance, with a decided odor and taste of the lactucarium, though partly covered by the orange-flower water, which it is thought is a good addition. In order that it may be examined by those present, I have two samples of the syrup in which the orange-flower water is replaced by water.

In the March number of the *American Journal of Pharmacy* for 1868, pp. 113 and 114, are two papers on the subject of syrup of lactucarium. Samples of the syrups by both processes are herewith presented.

ON SUPPOSITORIES.

BY CHARLES L. EBERLE.

Query 30th.—Is there a rapid method for making suppositories whereby the use of a hardening ingredient in connection with cacao butter will not be required?

When suppositories were first re-introduced, and became popular with the medical profession of the day, it was more or less

difficult to procure at all times a good sample of cacao butter, and so much of that furnished by the jobber was adulterated with fats having a lower fusing point than its ordinary application suggested, and required uniformly the use of a hardening ingredient when suppositories were to be prepared.

The best samples, however, now furnished for pharmaceutical use are not open to this objection, and in our hottest summer months can be handled with impunity, remaining firm and dense under the necessary manipulation.

No other substance or combination can well be substituted for it in this peculiar application of medicine, or at least none has yet been introduced claiming to supercede it.

The peculiar opinions of different pharmacists regarding the amount of hardening ingredient necessary to be added to cacao butter varying with the individual, I have not found two to accord perfectly.

While Mr. Markoe, in the climate of Boston, uses a proportion of one-third spermaceti, Mr. J. B. Moore, of Philadelphia latitude, whose paper in the May *Journal of Pharmacy* is the most valuable yet contributed on this subject in its practical application, (and whose samples on exhibition at this meeting are perfect specimens of art,) makes no admixture from October to June, thereafter adding a small portion of Japan wax.

The supposed effect of these small additions has been much over-estimated; no appreciable amount of time in hasty preparation is gained by the combination of wax until one-fifth is added, neither with paraffine, spermaceti or the Japan vegetable wax. Cacao butter, at ordinary temperatures after a time, sets in the mould and may be removed by its own gravity; the admixture often aggregates in a few days to a condition requiring more than animal heat for its fusion, and have been complained of by the physician for producing local irritation or being ejected from the rectum before disintegration.

There are occasional prescriptions of medicinal ingredients where the ol. theobromæ seems to require an addition, and it can properly be made where a large amount of soft medicinal extract is to be incorporated, or a solution of subsulphate of iron, for instance; but the dry powders, vegetable or mineral, need no as-

sistance; they contribute to the hardening of the butter, and in the case of oxide of zinc, carb. of lead, iodides of lead and cadmium, produce rapid aggregation.

The object of using suppositories is only gained where they fuse slowly, at animal temperature.

Mr. Markoe moulds his mixture of wax and butter and has the suppository unmedicated on hand. When the prescription arrives for their preparation, he remelts the number required, and, after medication, remoulds, thus doing away with the trouble of weighing the excipient, and insuring exactness in result—a commendable plan, as you will observe.

The greatest annoyance in the preparation of these appliances occurs when the pharmacist is called at night from his bed, the applicant impatient, weather hot, store close, and flies troublesome, to furnish a dozen or more. There is no supply of ice in his soda water apparatus, cold spring water is not to be had in the cities, and would not largely facilitate their cooling in the mould. The temptation is certainly great to add a large proportion of foreign excipient, and I am aware it is often done.

To reach such victims, who, regardless of a trifling expense, would welcome the departure of his customer, I offer a plan which answers well in practice: Procure a tin box eighteen inches long, six inches broad and six in height, arrange a cover of fine wire gauze, prepare a rest for suppository moulds made of wires crossing at right angles and fastened at each intersection; a ledge of tin is placed on the sides of the box, upon which the wire frame rests. One end of the box, four inches from the top, is perforated three-eighths of an inch in diameter, to admit the discharging tube of an atomizing apparatus. All things being adjusted, the fluid mass is poured into the moulds at the opposite end of the box from that perforated, or at such nearer position as may be requisite, the gauze cover placed in position and a spray of rhigoline, ether, or a mixture of alcohol and ether discharged against the offending moulds.

The happy pharmacist, satisfied with the rapid cooling, exclaims, "hang the expense," pours from the box what is condensed of the vaporizing fluid and dismisses his customer, alas!

too often to again have his blissful dreams disturbed before the advent of a morrow's sun.

Suppositories should always be passed over the counter with direction to keep in a cool place when not wanted for use, and to be then handled quickly. Servants should also be cautioned against placing the bottle in the pocket, or immediately contiguous to the person.

A great need is felt of a *low-priced* suppository adjuster. I am not aware that one exists, but believe the invention would meet with ready sale.

Shaved ice answers better for cooling than broken, or ice and water, a better mixture is shaved ice and salt.

ON THE PREPARATION OF PYROPHOSPHATE OF IRON.

BY SAMUEL P. DUFFIELD, PH. D.

Query No. 26.—It is found that the process of the Pharmacopœia for pyrophosphate of iron yields a preparation which it is sometimes impossible to scale. Can a better process be devised?

Pyrophosphate of iron rendered soluble by means of citrate of ammonia, was first proposed, by M. E. Robiquet, to the Academy of Medicine at Paris. As prepared by him the gelatinous precipitate was dissolved in citrate of ammonia solution, and a syrup was made from this solution. This process was improved by Prof. Procter; the result was also a syrup. The formula, as it occurs at present in the United States Pharmacopœia, is that of Dr. E. R. Squibb, and exhibits the finished product in scales.

The pharmacopœia process is to ignite the $2NaO, HO, PO_5 + 24HO$, thereby converting it into the $2NaO, PO_5$. This is dissolved in water and mixed with solution of tersulphate of iron, at a temperature not exceeding 50° Fahr.; the resulting pulpy precipitate washed thoroughly and dissolved in solution of citrate of ammonia.

This process I have been disappointed in; it scales but imperfectly, and sometimes not at all.

I am not alone in my complaint; several have tried the same process and failed to get satisfactory results. After having tried faithfully for four times this process, I devised a slight modification, which gave me the most satisfactory results, never failing once to scale handsomely.

The process: Take of the magma obtained from 8½ oz. of pyrophosphate of soda (which is about 6½ times as much by weight):

Aqua ammoniæ, ...	1 pint.
Citric acid, ...	6 oz.

Mix the pyrophosphate of iron (the magma) with the ammonia and digest at a gentle water-bath heat for 6 to 8 hours; then *gradually* add, constantly stirring, the 6 oz. of citric acid, dissolved in two pints of distilled water, *until* the ammonia is *neutralized* and the precipitate dissolved. Filter or decant, if necessary; evaporate to the consistency of a thick syrup; paint on glasses and scale as usual. The change which takes place on the addition of the ammonia is different from the appearance produced by the addition of citrate of ammonia solution.

In the case of the addition of aqua ammoniæ, the magma turns, in a few hours, of brick-red color; and in the case of the addition of citrate of ammonia solution, it dissolves to a gum color, similar to the iodide of iron liquor, before adding the syrup.

If now you add the citric acid to the brick-red colored magma, it gradually dissolves and becomes a greenish color by transmitted light, and dark-brown, almost black, when concentrated, by reflected light.

That there is a different apportioning of elements produced by the modification no one can deny. In the first you have pyrophosphate of iron in solution by means of citrate of ammonia, a mixture of neutral salts. In the second you have, on the addition of ammonia, pyrophosphate of ammonia and sesquioxide of iron, which latter exists in a free state. On the addition of the citric acid it unites with the sesquioxide of iron, forming the citrate of the sesquioxide mixed with the phosphate of ammonia. I think from this it will be seen that the composition is changed, the iron in the Pharmacopœia formula

(Squibb's,) existing as a pyrophosphate; the iron in my modification existing as a citrate of the sesquioxide.

As the Pharmacopœia Committee consider their preparation an intimate admixture of ferruginous and ammoniacal salts, I do not consider I have *violated* the U. S. P.

Detroit, Aug. 5, 1868.

ON THE MILKY JUICE OF LACTUCA ELONGATA, *MUHLENBERG.*

BY JOHN M. MAISCH.

Lactuca elongata, Muhl., is now generally described as a variety of L. Canadensis, Lin., under which name all the different forms of Lactuca are comprised which are indigenous to Canada and the Northern and Middle States of the Union, but this species is likewise met with, though less frequently, in the Southern States. It is a coarse plant, growing in hedges and thickets, in somewhat damp situations, and in favorable places its annual stem often exceeds eight feet in height. The inflorescence usually forms long and, at first, rather dense panicles, but it is also met with in rather loose, compound racemes. The foliage is extremely variable, and in the same situation specimens may frequently be seen with the leaves varying from runcinate pinnatifid to entire, and with the base rounded to sagittate and even amplexicaul. Its flowers begin to appear in July and the fruit to ripen in the month of August; but flowers and fruits may usually be found in the same plant till late in September and even in October.

Like other species of the same genus, this plant is lactescent in all its parts above ground, and the greatest number of the vessels carrying the milky juice are found immediately beneath the thin bark, so that a very slight incision will at once produce a milk-white exudation. Our species therefore resembles in these respects the two species from which, in Europe, lactucarium is produced, namely, Lactuca virosa and sativa, Lin., and it was reasonable to suppose that they all might, to a certain extent, resemble each other in their medical properties. In regard to

this point we find the following passage in the U. S. Dispensatory, 12th ed., page 503:

"It was supposed that our native *L. elongata*, or *wild lettuce*, might have similar virtues; and Dr. Bigelow was informed by physicians who had employed it, that it acts as an anodyne, and promotes the secretion from the skin and the kidneys. But, according to M. Aubergier, who experimented with different species of Lactuca, in order to ascertain from which of them lactucarium might be most advantageously obtained, the milky juice of this plant is of a flat and sweetish taste, without bitterness, contains much mannite, but no bitter principle, and is destitute of narcotic properties. (Ann de Thérap., 1843, p. 18.) The probability is that it is nearly or quite inert. Therefore, though formerly holding a place in our national Pharmacopœia, it has been discarded."

The subject has interested me for some years, since I had often observed, when out on botanical excursions, that the leaves of the different varieties of our Lactuca possess a strongly and lastingly bitter taste.

After the last annual meeting, during the fine days of September, 1867, I commenced the collection of the milky juice from vigorous plants growing in a damp thicket. Most of the plants had attained the height of six to eight feet, with the leaves on the upper half of the stem green and juicy, and bearing flowers and ripe fruits. Oblique incisions were made on various places of the stem. The exuding juice, in a few minutes, lost its fluidity and became gelatinous; though still soft, it possessed sufficient firmness and tenacity to be scraped off with the blade of a knife. To increase the quantity, the leaves were pulled off at the stem, and thus a portion of the bark was usually removed. The wound almost instantly became covered with the juice, which, however, likewise soon ceased to flow in consequence of gelatinizing; when this soft mass was now removed, the juice did not again commence to flow, or to the utmost only a minute quantity was obtained in addition.

In consequence of this rapid congelation, I was unable to unite the different tears so as to form a uniform mass similar to the European lactucarium. On drying, at ordinary temperature,

these tears shrunk considerably and very irregularly, without, however, coalescing into a uniform mass. The recent milky juice collected, as stated before, in a gelatinous condition yielded 22·13, 24 and 32·23 per cent. dry residue.

The lactucarium thus obtained is in irregular pieces, deeply corrugate and with the ridges rather acute; it has a grey brownish color, persistently bitter taste and a heavy, nauseous, narcotic odor, milder than and distinct from, but at the same time reminding of the odor of commercial lactucarium. It is rather tenacious and cannot be rubbed into powder like German and English lactucarium. In preparing a syrup from it, it was for this reason exhausted, instead of by displacement, by repeated digestion in dilute alcohol; otherwise the directions of the Pharmacopœia were followed. The syrup (℥i to Oi) possessed the bitter taste of the officinal syrup, but its odor was somewhat different and its color rather darker.

240 grains of this lactucarium, exhausted by dilute alcohol, left a residue weighing 151 grains; the soluble matter therefore amounted to 89 grains or 37·5 per cent. This result is intermediate between the amount of "extract" obtained by Messrs. Parrish and Bakes from German and English lactucarium; their sample of the former yielding with dilute alcohol 36, and of the latter 44 per cent. of extract. I am inclined to doubt the practicability of depending upon such a test for judging of the quality of lactucarium, which, like opium, does not represent the sap proper of the plant, but the contents of certain vessels, frequently at certain periods only of the life of the plants. The amount of soluble matter in pure opium is mostly within certain limits, but it has no relation whatever to the amount of morphia or other constituents; and this is undoubtedly true also of lactucarium, the relative proportion of the constituents varying from different causes, as appears to be indicated by the researches of Ludwig, Kromayer and others.

The syrup prepared from my American lactucarium did not possess the same stability during our hot season, as officinal syrup prepared from German lactucarium. The former had a tendency to ferment, so that it was found necessary to add a small amount of Hoffmann's anodyne; a sample, however, which was allowed

to ferment, possessed afterwards the original bitterness unimpaired.

A portion of the syrup from American lactucarium was placed in the hands of Dr. J. M. Da Costa, of this city, who was kind enough to try it in his private practice, and informed me that it had been used with decided benefit by several ladies requiring sedatives; on account of the crowded condition of the Pennsylvania Hospital, it was not used in that institution.

Dr. August Muller, resident physician of the German Hospital of Philadelphia, kindly consented to try this preparation on some patients with whom opiates did not agree, but who required sedatives. After satisfying himself of the sedative properties of the American lactucarium in question, Dr. Muller compared it with the German lactucarium, using both in the form of syrup, prepared by myself by the officinal process, merely substituting, for the former, percolation by digestion with dilute alcohol, for reasons previously stated. His conclusion was, that there is no difference whatever in the medicinal activity between the two.

These experiments, made by two physicians entirely unbiassed by the investigation of the other, it seems to me, prove conclusively that the milky juice of Lactuca elongata possesses the same virtues in the same degree as that of L. virosa.

During the present summer I have tried repeatedly to obtain this American lactucarium of the same appearance as the European article, but being otherwise considerably occupied, I was unable to arrive at a satisfactory result. I feel convinced, however, that the collection of lactucarium from our wild growing lettuce cannot be profitably carried on, and that to compete with Europe in price, cultivation on an extensive scale would have to be resorted to.

But it is not improbable that from the recent or dry herb a pharmaceutical preparation may be obtained, which, though not lactucarium, might answer all practical purposes. I have commenced to turn my attention in this direction, but in consequence of limited time, have only been able to make one experiment, with the following result:

A number of vigorous plants were collected; while fresh

they were cut up, bruised and subjected to pressure in a one-screw press; the residue was moistened with water and again expressed; the liquid was heated to boiling and strained. On tasting it now for the first time, it was found to have a sweetish taste, entirely destitute of bitterness. If Aubergier examined the juice of L. elongata, prepared in the same way, this experiment agrees entirely with his result; but the *press cake possessed the persistent bitterness of lactucarium.*

It is probable that the milky juice of this species, on assuming so readily a tenacious gelatinous form, envelopes the bitter principles and prevents them from being removed with the sap by pressure. This theory would indicate a process for a reliable pharmaceutical preparation, on the merits of which, however, only actual experiments can decide.

Philadelphia, September, 1868.

ON THE CONTAMINATION OF HYDROCHLORIC WITH SULPHURIC ACID AND OTHER OXIDES OF SULPHUR.

BY DR. E. R. SQUIBB.

QUERY 31.—Does the addition of metallic iron or zinc to ordinary hydrochloric acid, which contains sulphuric acid as an impurity, decompose the sulphuric acid and liberate sulphide of hydrogen?

In a discussion of the subject of tincture of the chloride of iron, imperfectly reported at page 97 of the Proceedings of last year, the writer stated, as an observed fact, that the escape of sulphide of hydrogen upon dissolving iron or zinc in hydrochloric acid was an indication of the presence of sulphuric acid as a contamination of the hydrochloric acid, and was a good practical test for detecting sulphuric acid. Mr. Maisch spoke doubtfully upon the accuracy of the statement, and in a subsequent conversation expressed a decided conviction that it could not be true. The writer had seen the proposed reaction so often that he had had no doubt upon the subject previous to Mr. Maisch's remarks, and then proposed to try the point by direct investigation. With this end in view the writer proposed the question as one to be reported on this year, and accepted the investigation for himself.

The investigation has been carefully made, and proves that the escape of sulphuretted hydrogen during the reaction in question is no evidence whatever of the presence of sulphuric acid, and therefore that the statement of the writer was entirely erroneous, and Mr. Maisch was quite right upon the point of accurate knowledge which he raised.

It became then a matter of interest to the writer to ascertain how the error had occurred. This was satisfactorily determined, and may interest the Association as a part of the history of the hydrochloric acid of commerce.

This acid is often, if not generally, made by the best makers by decomposing common salt in iron retorts by means of sulphuric acid and heat. The gaseous products and vapors from the decomposition are conducted into a series of three or four receivers or Wolf's bottles containing water for the absorption of the hydrochloric acid gas. But the entering tubes of these receivers do not dip into the water as in the ordinary Wolf's arrangement, and the absorption of the gas is therefore slow and passive, only facilitated occasionally by stirring. From the last receiver an ascending series of four or more shallow glass vessels lying upon an inclined plane, and discharging by gravitation one into the other, and the lowest one into the last receiver, are so placed as to receive at the highest end supplies of fresh water from time to time. This water, flowing downward, meets the current of yet unabsorbed gas from the last receiver, and absorbs it all in its progress into the last receiver, which finally contains the best hydrochloric acid of the process, and of the common market. This, when put up for the market, often shows little or no sulphuric acid by the manufacturer's test, which is solution of chloride of calcium. The reaction which occurs in the cast-iron retort from impure materials, and at a high temperature at the close, gives various gaseous products, among which the most common and most copious are the lower oxides of sulphur. It has generally been supposed with reason that small quantities of sulphuric acid also distil over, and that thus the hydrochloric acid becomes contaminated with sulphuric acid. This is doubtless always true with regard to the contents of the first receiver, but is practically impossible to any after the second! Not so

with regard to the lower oxides of sulphur, however, some of which are gaseous and all far less easily condensed. These are, therefore, found in the farthest and coolest receivers, and escape detection by the chloride of calcium test. The hydrochloric acid, which when freshly made contains these lower oxides of sulphur, but no sulphuric acid, will, however, on keeping, soon begin to show sulphuric acid, and finally will contain this acid alone, all the lower oxides being progressively and spontaneously converted into the higher one.

When hydrogen is liberated in a nascent state in the presence of these lower oxides of sulphur, they are all reduced and converted into sulphuretted hydrogen, sulphur and water, leaving the solution comparatively free from sulphur compounds. Thus it happens that when freshly made hydrochloric acid, free from sulphuric acid, but containing the lower oxides, is used for making the chlorides of iron or zinc, the resulting chlorides will be free, or comparatively so, from sulphuric acid and sulphates, while a portion of the same acid, if kept long, will contain sulphuric acid and be comparatively free from the lower oxides of sulphur. Hence the escape of sulphuretted hydrogen during the reaction with these metals is an easy practical test for the lower oxides, but not for the higher.

This best grade of hydrochloric acid is often not accessible to the writer, unless he waits for it to be made, and then it is received quite fresh and new, and is at once used for making the chlorides of iron and zinc. It then gives off sulphuretted hydrogen so copiously that it is necessary to make the solution out of doors, and yields chlorides which are practically, though not absolutely, free from sulphates. Portions of the same lot of hydrochloric acid stored, and used subsequently, have been found to contain largely of sulphuric acid and nothing else. Hence the conclusion that nascent hydrogen decomposed sulphuric acid in this reaction and thus yielded the floating sulphur, and the escaping sulphuretted hydrogen was accepted on very insufficient grounds and erroneously put forth.

All of which is respectfully submitted in answer to Query No. 31.

Brooklyn, August 14th, 1868.

ON THE SALTS OF CONIA.

BY GEORGE C. CLOSE.

QUERY 33d.—Conia has been recommended as a therapeutic agent, but is liable to alteration from atmospheric oxygen As the salts of conia appear to be permanent and are odorless, why may not some of these be substituted for the alkaloid?

The assertion in the query that the salts of conia appear to be permanent, is contrary, I believe, to the authorities on the subject, except with regard to the muriate, which Prof. Wertheim asserts to be crystallizable and not in the least deliquescent. The method which he suggests for making the muriate is the combining the vapors of the two substances directly. This method, to be successful, would require a larger quantity of the conia than I could afford to use, as the cost is eight dollars for what purports to be an ounce of the article.

I succeeded in making a crystallized muriate by dissolving 30 grs. of the conia in 2 fluidrachms of dilute muriatic acid, previously diluted again with its bulk of water, and evaporating the solution by means of a water bath.

Heat is developed while dissolving the conia, and white vapors are evolved at first, which, even when the mixture is made in a well corked bottle, will sometimes escape partially.

Some of the crystals obtained by the evaporation of the mixture were exposed for several weeks in an open capsula. They became alternately wet and dry, according to the state of the weather. From this I infer that they are hygrometic but not deliquescent.

I swallowed half a grain of the crystals which had been so exposed (dissolved in water), without apparent effect. I then took one grain, which produced the characteristic effects of the conia to such an unpleasant degree that I should be loth to repeat the dose. I am far less susceptible to the action of conia than many persons. This seems to show that the salt will retain its medicinal properties after several weeks' exposure.

I did not succeed in obtaining a crystallizable salt with sulphuric, citric or oxalic acids.

The conia used was made by Merk. This appears to be the

only kind in market. Its quality is not uniform, as in some instances it will not all dissolve in the dilute acid, but an oily residue is left.

I presume the muriate of conia might be made directly from the fresh plant or fruit at less expense than the conia, and have no doubt but that it would be far more convenient and reliable for medicinal use than the latter.

I do not claim to have exhausted the subject of the query, and shall be very glad if some member who has more skill, more apparatus and more money will take it up and investigate it more thoroughly than I have done.

I present a sample of muriate of conia, probably not quite pure, but sufficiently so for practical purposes.

ON THE RELATIVE PROPORTION OF DIGITALIN PRESENT IN AMERICAN AND EUROPEAN DIGITALIS.

BY SAMUEL P. DUFFIELD, PH. D.

Last year I asked an extension of Query No. 34, viz.:

Do the leaves of the Digitalis purpurea grown in the United States yield less digitalin than the European plant? and is the alleged inferiority of the former, if this be true, due to a deficiency of this principle?

My reasons for asking an extension were that I had not, satisfactorily to myself, blocked out a method of procedure which would answer it best. I had designed estimating the quantity of the alkaloid digitalia by the proposed method of Mayer, by precipitation by means of iodohydrargyrate of potassium, or by Rudolph Wagner's method of iodine in a solution of iodide of potassium. The more I pondered, the more satisfied I became that that process would not give a satisfactory answer, as we have not yet investigated the combinations of the alkaloid with these reagents, and a good part of it would have to be (on my part) assumption. We have, however, given us in the Pharmacopœia a method for the preparation of digitalin which is simple and practical. It is true it does not give us the pure alkaloid, but it gives it in a state pure enough for all pharmaceutical pur-

poses, and I assumed therefore that the digitalin meant in query 34 was the "digitalinum" of the Pharmacopœia.*

I accordingly wrote to the house of W. H. Schieffelin & Co. to procure me three samples of digitalis, such as came into the market and were usually sold to druggists. In fact, I desired the three representatives of the goods as they were usually found in the market.

They sent me three varieties:

No. 1. Leaves. Folia digitalis, from George Allen, London, handsomely packed in glass.

No. 2. The ordinarily packed and pressed digitalis of the Shakers of Mt. Lebanon, containing the small stalks.

No. 3. 1 lb. paper package digitalis, German. Name of grower or packer unknown.

The prices ranged as follows:

1 lb. Fol. digitalis, English, glass jar, $1.50.
1 lb. " German, .15.
1 lb. p'kge. American grown digitalis, .30.

French variety could not be obtained.

The process adopted was essentially that of the Pharmacopœia, being a slight modification of Wittstein's method.

One pound avoirdupois (7000 grs.) of the drug was reduced to a powder of No. 60 fineness, and percolated slowly by one gallon three fluid-ounces alcohol, gravity ·835, mixed with two drachms of acetic acid. It was percolated cold. When the percolation was finished the spirit was distilled at water-bath heat, the extract treated with four fluid-ounces distilled water containing one-half drachm of acetic acid, and digested with one drachm animal charcoal (granulated), and filtered. Filtrate was diluted with distilled water, so as to measure a pint in bulk. Ammonia was now added almost to neutralization, and the fluid precipitated with 80 grains of tannic acid dissolved in three fluid-ounces of distilled water.

This precipitate was washed with a small quantity of water mixed with one fluid-ounce of alcohol, and carefully triturated in a mortar with one drachm of litharge. The mixture was poured

* Digitalin contains no nitrogen and is not an alkaloid.—Editor.

into a flask of one pint capacity, and mortar rinsed with fresh spirit several times, pouring the rinsings into the flask until four fluid-ounces were obtained. This was heated up to 160° temperature, and maintained at that point for one hour. Animal charcoal one drachm was added, solution was filtered, spirit recovered by distillation, and remaining solution evaporated in a chemist's drying oven, at a temperature which did not exceed one hundred and fifty degrees.

The respective yields were as follows:

One pound of English digitalis yielded 63·60 grains.
" American " " 65·01 "
" German " " 56·50 "

This would equal for 1000 parts—

English digitalis,	9·08	grains.
American "	9·30	"
German "	8·07	"

The difference between the American and other varieties I can only account for by assuming that the small stalks which are packed with the leaves in the American sample contain more of the alkaloid than the leaves in proportion. I can prove this to be the fact from my experience with henbane stalks and leaves. But as reasoning by analogy is at best insecure, and often proves fallacious, I simply give you the facts and allow you to draw your own conclusions.

I am compelled to claim for our home-grown digitalis, if rightly dried and gathered, *superiority* instead of *inferiority*, at least reasoning from the samples. The question with me has of late often arisen, whether it is well to reject the stipules and stems; whether we do not lose in so doing what contains a greater amount of alkaloid than the leaf. This is a question which would bear investigation. Both my English and German samples were simply the *leaves*, while the American was leaves and stalks, such as the Shakers usually put up.

Detroit, Sept. 1, 1868.

ON THE USE OF YELLOW WAX IN OINTMENTS.

BY FERRIS BRINGHURST.

Query 35.—It has been asserted that yellow wax is better than bleached wax for the preparation of Ceratum and Unguentum adipis. If this be true, what principle in the crude wax possesses this property, and for what extent of time may its conservative power be relied on?

In reply to query 35th the writer, to whom the matter was referred, regrets his inability, either from the writings of others or his own experiments, to say with certainty to what principle yellow wax owes its preservative properties; but inclines to the belief that it is balsamic, containing benzoic or some analogous acid.

To give some idea of the length of time for which the conservative power of yellow wax may be relied on, the writer would ask attention to the samples of cerates which accompany this paper.

No. 1. Ceratum adipis, made with good yellow wax January 25th, 1867, and now nearly twenty months old, is in a good state of preservation.

No. 2. Ceratum adipis, made with Phillips' strained yellow wax, March 11th, 1867, now about eighteen months old, is in a good state of preservation.

No. 3. Ceratum adipis made with Phillips' bleached wax, March 11th, 1867, now about eighteen months old, bears decided evidence of rancidity.

These samples were all made from the same lot of lard, have been kept partly in the cellar and partly on the shelves in the store, exposed to the same temperature that the cerates of the shop are required to stand; generally covered to keep out dust, but always together, and hence under precisely the same circumstances.

The writer would here state that in former times, when using bleached wax, he has often been obliged to throw away portions of simple cerate as unfit for use on an inflamed surface, but that since using the yellow wax (now about four years) no such occasion has arisen.

In the preparation of cold cream, which is required to be par-

ticularly white, the writer continues the use of bleached wax; but in making glycerin cream yellow wax is used, and, while the latter keeps perfectly well, the former sometimes bears evidence of rancidity perceptible over the perfumed waters and essential oils in its composition.

In making ceratum plumbi subacetatis, or Goulard's cerate, which is perhaps the most difficult to preserve of the officinal cerates and ointments, the writer uses yellow wax, and finds it to keep much better than when made with white wax, though there is one slight objection to its use, which is the change of color, at least in the surface, from yellow to white, partly from a partial decomposition of the subacetate of lead and deposite of carbonate. Of course the same decomposition occurs with the use of white wax in this cerate, but not the change of color.

Samples 4, 5 and 6 will show to some extent the difference in the use of yellow and bleached wax in the preparation of this cerate.

In conclusion, the writer would remark that he conceives that in bleaching wax not only is the balsamic or preservative principle destroyed, but that during the process rancidification is started in the wax; and that as old vinegar or "mother" superinduces the acetous fermentation in cider, so bleached wax renders rancidification more certain and rapid in all cerates and ointments in which it is used.

ON THE PROPERTIES OF THE LEAVES OF PODOPHYLLUM PELTATUM.

BY SAML. P. DUFFIELD, PH. D.

Query No. 40.—The *leaves* of Podophyllum peltatum are said to be poisonous, (U. S. Disp.) Is this true? Are they cathartic, and to what principle is their activity due?

In my attempt to answer this question, simple as it may appear, I must confess I was at first puzzled as to the best means for proving whether the leaves of the Podophyllum peltatum do contain any resin or poison, and also in what state does it exist in the leaf.

In order to test this I picked, during the month of May, enough of the leaves so that I could be sure and have one pound of the dried powder. These leaves were gathered in Canada, directly opposite Detroit. They were powdered and reduced to the fineness required by the U. S. P. in the preparation of Resina Podophylli. I adopted the British formula for my method. The leaves were treated according to that formula, and an attempt was made to precipitate the resin in the manner therein prescribed; after waiting three days no resin was precipitated. I concluded, therefore, if 7000 grains did not yield any resin, the leaves could safely be considered inert. As these were gathered early in the spring, were, in fact, the first leaves put forth, it was considered premature to form an opinion based simply on this one experiment; and late in the fall of 1867, just as the leaf of the podophyllum was turning, I gathered enough to yield me one pound of powder. These were treated in the same way as the first and with a different result.

One pound of the powdered leaves yielded ·03 per cent. of Podophyllum, which would equal $2\frac{10}{100}$ grains to the pound. This proves that the late fall leaves contain a small amount of resin. A person, therefore, could not have any cathartic effect from the spring leaves, but might have a full cathartic action if he could eat one pound of the fall leaves, *dried*, or about one and a half pounds of these leaves in their natural state. I am therefore prepared to answer,

1st. The Podophyllum peltatum leaves are not poisonous from the resin of Podophyllum in them.

2d. They cannot be considered *actively* cathartic.

3d. If poisonous they owe their peculiarity to some principle distinct from the poisonous principle of the root (podophyllin).

Allow me therefore to ask that the Association extend a question to some member, who shall prove by experiments on animals what the poisonous principle is, if any.

I might add that I doubt that there can be found any fixed poisonous alkaloid in any quantity in the leaves, as I tasted quite freely of the extract without experiencing any effect; I must have taken over two grains at once and possibly more. I had not enough material after closing this report to go further

in my investigation. Family affliction &c. have encroached upon my time, and I hope the Association will pardon this lack of completeness.

Detroit, Aug. 3d, 1868.

HYDROCYANIC ACID.

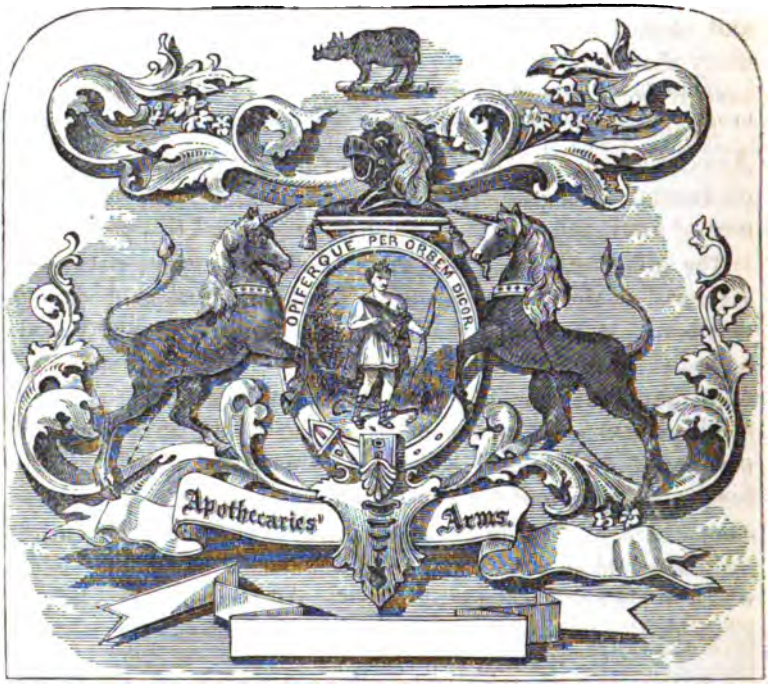
BY E. R. SQUIBB, M. D.

QUERY 36.—"Diluted Hydrocyanic Acid, U. S. P., is sometimes spontaneously decomposed into paracyanogen and other products, acquiring a black color, which M. Millon attributes to the action of ammonia. Will the presence of a minute portion of SO_3, HO obviate this, as has been asserted, and when the change has commenced will this addition suspend it?"

The proper investigation of this subject has proved too delicate and too difficult for the chemical knowledge and skill of the writer, and he therefore desires to be released from its further consideration.

In the frequent practice of making the officinal acid in pretty large quantities, it has frequently occurred, in past years, that portions of a given making would keep well for years, (once as long as six years), whilst other portions would undergo the decomposition alluded to in the query. Occasionally an entire making would be at once put up in new ounce bottles, a few of which would be from time to time returned spoiled. This led to additional care in perfecting and chemically cleansing the bottles, and, within the past two years, no complaints can at present be remembered.

VOLUNTEER REPORTS AND ESSAYS.



"OPIFERQUE PER ORBEM DICOR."

"And I am called a 'bringer of help' throughout the world."—*Motto from English Apothecaries' Coat of Arms.*

BY HENRY W. LINCOLN.

No doubt every apothecary who has looked above the mere routine of store duties, has found, in perusing the works of ancient history and heathen mythology, many pleasant fancies with which to beguile his time and make the dull and monotonous facts of life more endurable. Many of these works, particularly those of Virgil and Ovid, either in the original, or, better still,

in those translations of some of the older British poets, such as Pope or Dryden, are very fascinating, and contain many facts connected with botany and pharmacy; and although Ovid in the original was considered so licentious a writer as to have been banished by the Roman Emperor Augustus for some of his works, still, shorn of some of their objectionable features, and clothed in the pleasant garb of English poetry, contain many charming illustrations which can be made use of for pleasure, if not for profit.

To commence with, I have the pleasure of presenting to the Association an earthen pill tile, rude, but ancient, and valuable on account of its antiquity, bearing on its face the apothecaries' coat of arms, and the motto which has suggested this paper. It is the gift of C. H. Atwood, of Boston, a member of this Association, who received it from Mr. Farrington, an honorary member, now deceased, who in his turn was presented with it by a friend who procured it himself while in London from an apothecary. This is its history as far as known by the writer of this paper. Its age cannot be traced with any degree of precision. In Robsons' British Herald can be found the following description of the coat of arms:

"APOTHECARIES' COMPANY.

"London. Incorporated and arms and crest confirmed Dec. 5, 1667; before which time they were united to the Grocers. Apollo with his head radiant, holding in his left hand a bow, in his right an arrow, supplanting a serpent. Crest on a wreath, a rhinoceros. Motto 'opiferque per orbem dicor.'

"Note. Supplanting a serpent are the words of the grant, but it is likewise blazoned 'bestriding a serpent.'"

In Burke's Encyclopædia of Heraldry, 1851, is the following description, which differs a little from that taken from Robson:

APOTHECARIES' COMPANY.

"In shield, Apollo, the inventor of physics, with his head radiant, holding in his left hand a bow, and in his right an arrow, supplanting a serpent. About the shield a helm, thereupon a mantle, and for a crest, upon a wreath of their colours a rhinoceros, supported by two unicorns armed and ungulated. Upon a compartment, to make the achievement complete, this motto, 'opiferque per orbem dicor.'"

In Stone's "Survey of London," published in 1633, is the following:

"The company of apothecaries that have divided themselves from the ancient society of Grocers, grew so highly favored by our Sovereign Lord, King James, that (as I have heard) he called them his Company, and granted the order for incorporation the sixth day of December, in the fifteenth year of his Highness Reigne, 1617, as the Master, Wardens and Society of the Art and Mystery of Apothecaries, of the city of London."

The company of grocers, in elder times called Pepperers, were first incorporated by the name of Grocers in the twentieth year of King Edward the Third, anno domini, 1345.

Crest, a camel, supported by two griffins; on a shield nine pepper corns, or, as sometimes mentioned, cloves, and having for their motto "God Grant Grace."

In Burton's "Observations on London," published in 1730, we find an account of the arms of 62 of the trades of London, with wood cuts representing the shields and mottoes of the several companies, among which can be found the arms of the apothecaries' company.

In 1345, a person by the name of Coursus de Gangeland, on whom Edward the Third then settled a pension of six pence a day for life, for his attendance upon his Majesty while he lay sick in Scotland, is called in the grant an Apothecary of London.

Those of the Association who partook of the hospitalities of the Massachusetts College of Pharmacy, during the harbor excursion in 1865, may remember the engraved coat of arms at the heading of the bill of fare of the dinner at Point Shirley. This was a lithograph taken from a plate engraved for Mr. Kent, of East Boston, who got the design from an English engraver, and used it on a store label. A specimen of the bill of fare and label will be shown here.

The motto of the coat of arms is taken from Ovid's Metamorphoses, in that portion where Daphne is transformed into a Laurel.

"Daphne, a daughter of the river Peneus, is beloved by Apollo, and endeavors to remove herself from his importunities by flight. Fearful of being overtaken, the maiden invokes the assistance of her father, who, by the aid of the gods, changes her into a Laurel."

The following is the history and description of Apollo:

Apollo, son of Jupiter and Latona, twin sister to Diana; called also Phœbus; often confounded with the sun.

Apollo was the god of all the fine arts—of medicine, music, poetry and eloquence—of all of which he was deemed the inventor. He had received from Jupiter the power of knowing futurity, and he was the only one of the gods whose oracles were in general repute over the world. When his son Æsculapius had been killed by the thunders of Jupiter for raising the dead to life, Apollo, in his resentment, killed the Cyclops who had forged the thunderbolts. For this act of violence he was banished from heaven by Jupiter and remained in exile nine years, tending sheep in Thessaly. Apollo is generally represented with long hair, tall, beardless, with a handsome shape, holding in his hand a bow, and sometimes a lyre; his head is generally surrounded with beams of light.

It may be well to trace the general traits of some of the members of this supposed family.

Æsculapius, the son of Apollo, was deemed the god of medicine. He is represented with a large beard, holding in his hand a staff round which is wreathed a serpent. This is the "caduceus" which more properly belongs to Mercury.

Hygeia, the goddess of health, was the daughter of Æsculapius, and is generally represented as a young woman holding a serpent in one hand, and in the other a cup, out of which the serpent sometimes drank.

In the early stages of the practice of pharmacy, such was the proneness of the people to superstition, that Hippocrates and Galen complained that the mystic signs of Æsculapius had more effect upon their patients than their own prescriptions.

The motto and its connection read thus in Ovid:

> "Inventum medicina meum est, Opiferque per orbem
> Dicor, et herbam subjecta potentia nobis."

Translated, it is as follows: "Medicine is my invention, and I am called a 'bringer of help' throughout the world, and the power of herbs is subject to us."

The occasion which called forth the above is stated thus:

Apollo, fresh from his successful conflict with the serpent Python, looks with disdain upon Cupid, and banters him for having so small a bow and arrows by saying that they were only fit for children; and Cupid, to revenge himself upon him, is

determined that he shall feel the effects of his darts, be they never so small, and for this purpose forges his arrows, one of gold, and one of lead; the first to be used on Apollo, to cause desire, the other of lead for Daphne, to repel desire. Daphne flees to escape from Apollo, when, in order to make her abate her speed, he addresses her as follows. This is rendered by Dryden thus:

"Perhaps thou know'st not my superior state,
And from that ignorance proceeds thy hate.
The King of gods begot me; what shall be,
Or is, or ever was, in fate, I see.
Mine is the invention of the charming lyre;
Sweet notes and heavenly numbers I inspire;
Sure is my bow, unerring is my dart;
But, ah! more deadly his who pierced my heart.
Medicine is mine; what herbs and simples grow
In fields and forest, all their powers I know,
And am the great physician called below.
Alas that fields and forests can afford
No remedies to heal their love-sick lord;
To cure the pains of love no plant avails,
And his own physic the physician fails."

This has no other effect upon the fleeing fair one but to increase her speed, until she arrives at the banks of her paternal river, where she is changed at her request into a laurel. Dryden describes the transformation as follows:

"Scarce had she finished when her feet she found
Benumbed with cold and fastened to the ground;
A filmy rind about her body grows;
Her hair to leaves, her arms extend to boughs;
The nymph is all into a laurel gone;
The smoothness of her skin remains alone.
Yet Phœbus loves her still, and casting round
Her form his arms, some little warmth he found.
The tree still panted in the unfinished part,
Not wholly vegetive, and heaved her heart.
He fixed his lips upon the trembling rind;
It swerved aside, and his embrace declined;
To whom the god—'Because thou canst not be
My mistress, I espouse thee for my tree;
Be thou the prize of honor and renown;
The deathless poet and the poem crown;
Thou shalt the Roman festivals adorn,
And, after poets, be by victors worn:

Thou shalt returning Cæsar's triumph grace,
When pomps shall in a long procession pass;
Wreathed on the post before his palace wait,
And be the sacred guardian of the gate:
Secure from thunder and unharmed by Jove;
Unfading as the immortal powers above:
And as the locks of Phœbus are unshorn,
So shall perpetual green thy boughs adorn.'"

This is certainly a very pretty description of some of the characteristics of the laurel family, which together with the name, Daphne, would seem to confirm the reasonableness of the fable.

The motto of the apothecaries' company has also been selected for the motto of a Scottish family named Keddie, having for their crest an open lancet.

One of the oldest of the apothecaries of Boston, a number of years ago, used on a label the words "Medicina meum inventum est," with more assumption than propriety.

In the heading of this paper the writer has given the most generally accepted translation of the motto; but the apothecary of our day could give it a more free rendering, and, perhaps, a better significance, as follows: "All over the world I am called a worker;" for early and late he is found at his post, and he is by no means an "eight-hour man."

In Malcom's History of London, published in 1803, can be found the following notice of the

"*Company of Apothecaries.*—This fraternity is, doubtlessly, the most important of any which has been incorporated by the favor of our monarchs. Indeed, the lives of the publick are in a great measure in their keeping. A mistake committed by an apothecary has been known, by fatal experience, to be irrecoverable. For this reason the Legislature enacted, March 26th, 1564, 5th Elizabeth, 'The bill that apothecaries and their stuff shall be under the search of the College of Physicians.'"

April 6th, 1624. Sir Edward Coke reports for the Committee for Grievances a case of the grocers and apothecaries of London. The apothecaries, anciently of the company of grocers, complained that the latter interfered with their business by selling articles that more properly belonged to them. Whereupon it was "resolved that the apothecaries may, if they so think fit, prefer a bill into this house for the sole confection and making

those medicines that require art and skill, and that are proper unto them."

April 19, 1624. An act for incorporating the apothecaries of London, and within seven miles, was read the first time. James I, in the fourth year of his reign (1607), had incorporated the apothecaries with the grocers, but in consequence of a wish expressed by the apothecaries, enforced by the opinion of his own physician, he separated the sweets from the bitters, and rendered the apothecaries once more their own masters, in the fifteenth year of his reign (1617). By this latter act he forbid all grocers, or others, from keeping shops for the retailing of medicines and nostrums; the sale of which he directed to be entirely under the management of the master, warden and fellows of the apothecaries' company; who were empowered to search all shops, in order to destroy such drugs as were unfit for use, and to levy fines.

In 1747 the Company applied to the Legislature for an increase of power in these particulars, owing to an increase of shops and several cases of malpractice being noted, from those who had entered into the business without proper skill. Previous to 1747, two medicines were sold by many out of one receptacle.

Samuel Crawton produced two medicinal compositions which he bought at Dr. Butler's dispensary, in Russell street, Convent Garden. These were purchased by him at different times under the names of Venice treacle and mithridate; but, he observed, they were both taken from the same pot. Mr. Watson analyzed those compositions and declared them to be very bad. The treacle tasted too strong of aniseed; and this he pronounced should be composed of one hundred different materials. The mithridate he believed to be made of the same drugs as the treacle, though they ought to be very different compositions, especially in regard to opium; one seventy-fifth part of the treacle should be opium, but not a two hundred and fortieth part in mithridate. So that if a sick person who was advised to take a quarter of an ounce of mithridate, should instead thereof take the same quantity of Venice treacle, he might be strangled by the violence of the operation of the opium. Other sophistications and substitutions were mentioned, such as true cinnamon

water was imitated by cassia caryophyllata; syrup of balsam was prepared with the juice of marshmallows to save sugar, &c. Such was the demand for bad medicines that the chemists acknowledged they had been long in the habit of making real medicines for the honest part of the dealers, which they distinguished by the term "verum," and bad for the dishonest, which they styled "non verum."

According to the "Gentleman's Magazine," in the year 1736 several apothecaries and chemists were convicted by the magistrates for retailing spirituous liquors under various denominations, and fined one hundred pounds each. One of those persons pleaded that the right of selling them belonged originally to the Company of Apothecaries, who were the best judges of the quantity necessary to be administered, alleging he had found gin to be very efficacious in curing the gripes, and that that disorder had prevailed to an alarming extent since passing the act restraining the apothecaries in their practice.

Mr. Campbell, in his "London Tradesman," published in 1757, says:

"I have classed the apothecary last, not out of any disrespect to this formidable body of men, or out of ignorance of their great importance, but because the other branches—the chemist and druggist—contribute to make up their shops. The apothecary is certainly the oldest son of the doctor, and his necessary assistant. The apothecary, simply as such, is only employed in composing of medicines, by the doctor's prescription, without respect to their qualities; his knowledge of his profession is confined to the names of the drugs, of which he is not so much as to understand the etymology; he must only know that rhubarb is not Jesuit's bark, that oil is not salt, and that vinegar is not spirit. He must be able to call all the army of poisons by their proper heathenish names, and to pound them, boil them, and mix them into their proper companies, such as pills, boluses, linctures, electuaries, syrups, emulsions, juleps, &c., &c. He must understand the physical cabala, the mysterious character of an unintelligible doctor's scrawl; he must be alert and ready-handed in gilding his pills, and papering up his boluses with ingenious cuts and figures emblematical of their important uses; and have a nice taste in glasses, vials and gallipots, and the judicious arrangement of their gilt labels to the advantage of his shop. This is a mere apothecary; a profession that requires very little brains. He wants a very strong memory, to retain such a number of cramp words as he is daily conversant with. There is no branch of business in which a man requires less money to set him up than this very profitable trade: ten or twenty pounds judiciously applied will buy gallipots and counters, and as many drugs to fill them with as might poison the whole

island. His profits are inconceivable; 500 per cent. is the least he receives. The greatest part of his outlaying is in vials, small boxes and cut paper, and these are often worth ten times what they contain."

Much more of the same sort follows, and we find the following good advice at the close of his article:

"I would therefore have all parents, if they desire their son for an apothecary, give him an early and liberal education, and let him, either in the course of his apprenticeship or before he sets up for himself, attend the anatomic, botanic and physical lectures, at least for two seasons. With this and the experience he must pick up in his master's shop, he may safely depend upon his judgment in common cases."

They had a custom at the beginning of the last century of going a simpling, as it was called, two or three times a year, when they had a feast. This was in order to disseminate a knowledge of botany, and this laudable custom is still continued. Sir Hans Sloane granted the freehold of the physic garden at Chelsea to the company, upon condition that they should present annually to the Royal Society fifty new plants, until the number should amount to 2000. The conditions were punctually complied with, and the specimens preserved in the archives of the Society. Bailey defines a "simpler" a gatherer, or one who has skill in simple herbs; "simples," all herbs or plants, as having each its particular virtue whereby it becomes a simple remedy.

At a later day, nearer our own time and in this country, by one of our sweetest poets, Bryant, we find that—

"The simpler comes with basket and book,
For herbs of power on thy banks to look."

It would be quite desirable to continue this paper, and include more fully the history of the Apothecaries' Company of London, but the writer feels that at present he has trespassed full enough upon the valuable time of the Association.

The writer has brought for exhibition a coat of arms belonging to the Massachusetts College of Pharmacy. This was drawn with a pencil by a young man named Rich, a clerk in the employ of Messrs. Brewers, Stevens & Cushing, of Boston; and shew so much merit, although, as can be seen, only a pencil sketch on a piece of brown paper, that at Mr. Brewer's request he presented it to the College. Also I have the pleasure to present to

the Association a lithographic copy of the coat of arms, which was drawn by Mr. Scott, a clerk in my employ last year, and which seemed so well done that he was advised to have it put on stone, that others might be able to procure copies if they desired.

There is some discrepancy between the two coats of arms as I have shown them here, those on paper being correct, as far as the description goes as found in the works on the subject. The crest on the tile seems to be a tortoise and a tree, but I can find no authority for the same. But it may be that the tortoise, being one of the animals sacred to Apollo, was used in that sense, and the tree might be intended to represent the laurel.

I will here summon "alliterations' artful aid," and say, perhaps a poor, plodding and prosy pharmaceutist may presume to peruse these pages to prove he can keep pace with this progressive period, and from the fair fields of fiction find fit food for future feasts. For he frequently can find fresh flowers of fancy from far-fetched fables.

In closing this historical notice, the writer feels that he cannot do better than to quote from the preface of an old work published in 1651, as follows:

"In the mean time, if what I know may add to thy experience, thou hast it freely; and I hope this will be the occasion to set the expert artists on work, for the communicating their experience to the world. If thou knowest more or better things than these, be candid and impart them (considering that I wrote these for them that know them not); if not, accept of the endeavors of thy friend."

NOTE ON THE SO-CALLED CARBOLIC ACID, OR COAL TAR CREASOTE.*

BY EDWARD R. SQUIBB, M.D.

The chief object of this note is to mention some recent experiments with this important substance, and some deductions drawn therefrom.

* This note was intended as a supplement to an expected paper from Prof. Chandler, of New York, upon the chemical character and relations of this substance; and therefore the pure or accurate chemistry of the subject has not been developed here, but chemical properties and characteristics have only been added as required, since finding that Prof. Chandler has not had time to prepare his paper.

It is pretty well known that the creasote of the common market of late years has been made from coal tar, and that it consists mainly of phenyl-alcohol and cresyl-alcohol, often called carbolic and cresylic acids, in not very uniform proportions. In the process of rectifying the creasote for the markets, the portions which distilled over at a low temperature, say below 190° C., and at a very high temperature, say above 220° C., were rejected. An examination of this creasote by the light of advancing knowledge, showed that it was a complex substance, consisting mainly of two similar liquids of different ultimate composition and properties, which could be separated by the difference in their boiling points. These liquids, when examined for classification, were at first supposed to be acids, and that having the lower boiling point was called carbolic acid, from carbon and oil or the coal oil from which it was obtained. It was subsequently found to belong to the phenyl group, and was then called phenylic acid; and its congener, the other principal liquid of higher boiling point, was found to belong to the cresyl group or series of organic compounds and was called cresylic acid. Another liquid found in creasote, but in small proportion, and having a still higher boiling point, was found to belong to the xylene series, and was called xylic acid. In proportion as the rectification of the creasote rejected the higher and lower boiling point liquids, so it would contain more or less of these, and thus would vary in its composition, and boiling point. Late, more critical examination has shown that these liquids are not acids at all, in the common acceptation of the word acid, and that they must, for the present at least, be considered as alcohols. The coal tar creasote of the markets at the present day must be considered practically as a mixture in variable proportions of phenylic alcohol or phenyl-alcohol and cresylic alcohol or cresyl-alcohol, with small and unimportant proportions of other organic compounds, the first or phenyl-alcohol being commonly in the largest proportion. The dark colored oily liquids met with in the markets under the name of crude carbolic acid for the lower grades, and impure carbolic acid for the better grades is this same mixture of these liquids in varying proportions, but commonly containing more or less tar, oil, etc., and is therefore in

reality coal tar creasote. It is now not only inaccurate but positively incorrect to call this mixture (or either of its constituents) an acid, and the longer it continues to be so-called the more difficult it will be to change it. And as it is a very important substance now, and must come into far more important and far more general use; and as in practical general application it will probably always be a liquid mixture of these two or more alcohols, there appears very good reasons for going back to the original well-constructed name of creasote for it, leaving the name "wood creasote" for the rare substance described by Reichenbach and others, which, however, has similar properties and is applicable to the same uses. When separated, each alcohol should take its proper name, as phenylic alcohol and cresylic alcohol..*

As these things grow into common use, and through science are applied to the necessities of mankind, they become objects of mercantile interest, and when taken up as sources of gain or profit, they are apt to be studied and applied with a bias directed by the pecuniary interest of the manufacturer. To the foresight and mercantile enterprise of Messrs. F. C. Calvert & Co., of Manchester, England, the world owes mainly the practical application of the scientific knowledge and research of Runge, Laurent, Williamson and others, in regard to this subject, and it became the interest of this firm to push forward those grades and forms of the substance which would best repay their praiseworthy labor, and large outlay. These grades were those which required most skill in their production, and in which they were least liable to an early competition. Phenyl-alcohol being the most abundant and the most stable of the tar alcohols, and, by dexterous and skillful management, susceptible of separation and purification into the condition of a beautiful white crystalline "car-

* Some recent observations, if reliable, and they are supported by statements in regard to specimens shown at the Paris Exhibition, throw some doubt upon the analyses on which these substances were classed with the alcohols. The doubt is as to whether the specimens analysed where free from water or not. Perfectly crystallized specimens of phenyl-alcohol are said to be met with melting at various temperatures between 16° C. = 61° F. and 42·2° C. = 108° F.

bolic acid," became their chief object, so that upon this all their statements were based, and toward it all their efforts tended, whilst with it all the early experiments were made, and upon it the trials in practice were based. The cresyl-alcohol for some time was supposed to have little or no antiseptic or azymotic effect. As the field of labor and application enlarged, however, and particularly when the substance came to be applied upon so grand a scale as that of attempting to control the cattle plague throughout northern Europe, under the direction of such men as Mr. William Crookes and Dr. Angus Smith of London, it expanded somewhat beyond the mercantile influences, and the cresyl-alcohol was shown to be equal with, if not superior, to the phenyl-alcohol in azymotic effect. Taking this hint from the valuable paper of Mr. Crookes two years or more ago, the writer made some experiments upon fungi, which, though scarcely definite enough to deserve the name of experiments, convinced his judgment that the somewhat incongruous mixture of coal tar products, which, when properly separated from oils and pitch, commenced to boil at about 180° C., and distilled over below 235° C., though still containing water and impurities, was more efficient as an azymotic than the pure crystals of phenyl-alcohol. Through a small experience of two years or more, this conviction has been strengthened until the wisdom of separating these substances and rejecting the cresyl-alcohol was no longer in doubt, though still not proven; and lately a series of experiments were made which have set the matter at rest in the writer's mind, and are now to be briefly referred to.

It was found, as expected, that a very dilute solution of the impure mixed alcohols very promptly destroyed and detached the cryptogamous plants, which grew in the form of a green mildew upon the brown stone and drab stone fronts and areas of residences which were shaded and damp. This troublesome and unsightly defect being so perfectly and so easily controlled by the creasote, suggested that these plants would be an easy practical test of the azymotic efficacy of the alcohols in solutions of various strengths. The cryptogams, as they grew upon a brick pavement in a damp place, were made the subject of the experiments, and the solutions were applied with a camel's hair

pencil. In a preliminary series of trials, solutions of the impure mixture, of various strengths, were applied without apparent effect, the plants looking as green and healthy as ever on the evening of the day of the application. A shower came in the night, however, and in the morning the bricks were bare and clean wherever the solutions had been placed. It was then remembered that the destruction of the chlorophyl of plants was a kind of fermentation, and it was argued that these solutions killed the plants by their azymotic power, but by their antiseptic power had prevented the destruction of the chlorophyl, which is the common evidence of death in the green parts of plants. The plants had lost their hold with their vitality, and the rain drops had washed them away, leaving the boundary lines of contact of the solution as sharp as though made with a knife, though quite invisible the evening before after the solutions had dried off.

This little observation shows the need for a new word to express the peculiar power of this substance over vitality, and which might subserve the purposes of convenience and accuracy of expression now when this peculiar and comparatively new power is coming under critical investigation.

Dr. Angus Smith proposes "colytic," which is a good term, but needs the natural relation to the already well established word zymotic. This relation is supplied in the French word antizymotique, which is found in Nysten's Dictionary, and is a better word, though perhaps a little less convenient than azymotic, which is proposed by the writer and used in this note. The etymology is evident, and its meaning in contradistinction to antiseptic, the nearest word to it, is well illustrated in the behaviour of these green cryptogams.

The next step in the experiments was to separate the two alcohols. This was accomplished, perhaps not perfectly, but as far as could be practically useful, by fractional distillation; and the cresyl-alcohol thus obtained, but not dehydrated, was used in competition with Calvert's crystallized phenyl-alcohol, thus giving an advantage to the latter. A specimen of this cresyl-alcohol is presented herewith, and its degree of impurity may be judged roughly by its having changed color only slightly by about one

month of exposure to light, and by a sulphurous odor. The sensible properties of the two substances are very different when critically examined, but the greatest difference is in solubility. The Calvert's crystallized carbolic acid used was, at ordinary temperatures, soluble to the extent of about 6·6 per cent. The cresylic acid, or cresyl-alcohol, as imperfectly isolated here, was soluble to the extent of only 1·8 per cent. at the same temperatures and by the same management. Thus the saturated solution of phenyl-alcohol contained about five times as much of the alcohol as the saturated solution of the cresyl-alcohol. Filtered solutions of each, containing accurately one per cent., were made under the same conditions of temperature, etc., but the phenyl-alcohol had the advantage, first, because it was dehydrated, or nearly so; secondly, because it was pure and dissolved entirely, whilst the cresyl-alcohol was not pure, or completely separated from other soluble alcohols, and left an insoluble residue of at least two or three per cent. (estimated) upon the filter. The same volumes of each were, however, accurately taken, namely, 10 c. c. in the litre, the remainder being distilled water. Then 10 c. c. of each of these solutions was diluted with 90 c. c. of distilled water; and again 10 c. c. of each of these last was diluted with 90 c. c. of distilled water. These solutions then contained, respectively, ten parts in the thousand ($\frac{10}{1000}$). One part in the thousand ($\frac{1}{1000}$), and one part in ten thousand ($\frac{1}{10000}$). These were then used for making other solutions, from which the following results were obtained.

The trials upon the lichens or cryptogams were commenced with solutions containing one-half of one per cent., or five parts in the thousand ($\frac{5}{1000}$). A single application of either had no visible effect upon the plants. By a second application of the same solutions to the same places, the plants were completely killed by the cresyl-alcohol, but not visibly affected by the phenyl-alcohol. A third and fourth application of the solution of phenyl-alcohol to the same spot produced no apparent effect. Solutions containing one per cent. were next used. A single application of this promptly and entirely destroyed the plant in the case of the cresyl-alcohol, but had little, if any, effect from the phenyl-alcohol. In repeating the trial, it appeared

possible that the younger and more feeble plants were killed by the single application of phenyl-alcohol, but this was not certain. A second application to the same places killed almost all the plants when applied in localities where they were not very abundant and very vigorous. Occasional patches of the strongest plants were, however, generally left after the second application of the solution of phenyl-alcohol of one per cent. A third application of this, however, cleaned them all off, apparently as clean as did the single application of the solution of cresyl-alcohol of the same strength.

Mixtures of the two solutions were then tried, with results which could have been predicted by calculation upon those above given.

Then the natural admixture of the alcohols as they occur in the so-called impure carbolic acid, where the liquid which distils over between 180° C. and 208° C. is taken altogether, and becomes black by exposure to light and air, 80 or 90 per cent. being soluble in water. This impure mixture produced very decidedly stronger effects than the pure phenyl-alcohol solution of the same strength, the effects being estimated to be nearly, if not quite, double.

These results seem to prove that the crystallized phenyl-alcohol, or crystallized carbolic acid is by far the least effective of the two chief tar alcohols. But at the same time that they are very definite in regard to the fact, they are much less definite as to the degree. All that can be considered as proved is that the cresyl-alcohol has more than double the azymotic power of the phenyl-alcohol in its application to these mosses; but how much more than double is not shown. In searching for a more sensitive mode of comparison, the smell and taste were finally adopted, but as it was soon proved that the smell was far less delicate than the taste, the latter alone was relied upon. The taste of the two alcohols is very different. That of the phenyl-alcohol is characterized by its sweetness and comparative blandness. That of the cresyl-alcohol is smoky, dry as opposed to sweet, and pungent, and is not instantly developed. In very dilute solution the latter has only a smoky taste. In these trials by taste it was soon found to be necessary to consult a number

of persons quite independently of each other, and also to have some criterion or test of the delicacy of different tastes, so as to exclude those which were not tolerably sensitive, and it was very curious and instructive to see how this sense varies in different persons. Solutions of common methyl-alcohol were fixed upon for this test, and it was found that comparatively few persons could recognize a mixture of one part common alcohol in ten thousand parts of distilled water; but that many would promptly detect one part in five thousand. This test served well in selecting the tastes to be relied upon, and in no single instance did cross-examination, by change and confusion of bottles, and other efforts, succeed in materially changing or interfering with the decision made. Ten persons beside the writer were selected from many tried, and their evidence was accepted in the following results. Four of these proved upon repeated trials to exceed the others in delicacy of taste, and two were quite sensitive, making their decisions with great promptitude and certainty. These were repeatedly tried, not only upon their own conclusions, but were used to test the conclusions of others, and the different trials were made upon different days; extended over a period of many days, and where often made early in the morning, when the senses are fresh and impressible, and before the odors of a laboratory had blunted the perceptions of those occupied in it. A series of preliminary experiments and observations were made by which to learn how to conduct them, and how best to avoid the many chances of inaccuracy and fallacy. The solutions used were made with great care and accuracy from the same alcohols used for the cryptogams, namely, Calvert's crystallized medicinal phenyl-alcohol, or carbolic acid No. 2, and the cresyl-alcohol imperfectly separated and prepared by the writer. Among the many persons, probably twenty, to whom these solutions were presented, only two or three failed to detect both the alcohols in solutions which contained one part in ten thousand of distilled water. The whole of the ten persons relied upon detected the phenyl-alcohol in a solution which contained one part in twenty thousand, though all did not detect it every time they were tried, and many failed to detect it when tried soon after having tasted a stronger solution. One observer

only could detect phenyl-alcohol in a solution of one part in fifty thousand, and, although his testimony is unequivocal, his evidence is unsupported. No one gave the slightest evidence of taste in a solution of one part in one hundred thousand parts of distilled water. Every one of the ten persons relied upon detected the cresyl-alcohol in a solution of one part in one hundred thousand parts of water every time it was submitted to a fresh, clean palate for trial, and generally detected it even after other trials. Five of the ten persons easily, promptly and repeatedly detected the smoky taste of the cresyl-alcohol in a solution of one part in two hundred thousand parts of distilled water, and detected it so promptly as to show that this was not the limit of easy detection, although this was the most dilute solution tried. This solution is in the proportion of 1 c. c. in 200 litres, or about 15½ grains in 52 gallons.

These results lead to the conclusion that to the ordinary sense of taste the cresyl-alcohol is from five to ten times stronger than the phenyl-alcohol. How far this single series of experiments may be safely accepted it is difficult to decide, but their indication is unequivocal that the azymotic power of the two alcohols is very different, and is in favor of the cresyl-alcohol in about an inverse proportion to the degree of solubility in water. That is to say, that the azymotic power of the saturated solutions is somewhere about equal, whilst the saturated solution of phenyl-alcohol holds five times as much of that alcohol as a saturated solution of the other does of cresyl-alcohol. Whether these circumstances may be a good measure,—or a measure at all,—of their relative intrinsic value in use, is certainly not determined, though in the writer's judgment it is so very probable as to leave no doubt as to the impropriety of separating and rejecting the cresyl-alcohol; and one object of this paper will have been accomplished if this point can be raised for future experience and more accurate research. In the meantime it is very obvious that a mixture of the two alcohols in the ordinary proportions in which they occur in the available products of coal tar distillations, is at least equally useful for all the known purposes to which the phenyl-alcohol has been applied in medicine and in hygiene, whilst such mixtures are far cheaper and far more easily obtained.

These mixtures are commonly known as impure carbolic acid until they get into hands where nothing is admitted to be impure. Then they take the very bad name of "*solution* of carbolic acid," and are generally so labeled. This is intended to mean liquid carbolic acid, and is very bad because it confounds this caustic and powerful liquid with the dilute solutions of it commonly required and used. The name "solution of carbolic acid" should never be used for the strong liquid of various shades of color commonly sold in pound bottles with a mere strip label, and it is remarkable that no serious accidents have been heard of from this common use of so bad a name.* It can be justly said that impure carbolic acid is equally inaccurate, but it is not so bad because not dangerous. A far better name would be creasote, simply, or coal-tar creasote, or tar alcohols, with the synonym, so long as this may be useful, "or carbolic acid so-called."

This liquid, as obtained from different makers, varies considerably in the proportion of the two principal alcohols, and always contains at least one other homologous compound in small proportion, as well as other substances which are accidental, and also in small proportion. These variations in proportion, and accidental contaminations, when within reasonable bounds which are easily controlled by simple tests, are practically quite unimportant, and may, for the present at least, be wisely and safely disregarded in a substance so important to be promptly known and recognized in general use. When freshly distilled, this creasote is a transparent, colorless, highly refracting oily liquid, heavier than water, having a pungent, sometimes slightly sulphurous odor, and pungent caustic effect on the tongue. When exposed to the light it promptly begins to acquire color, and in twelve hours becomes of a delicate wine color of a rosy tint. From this, by continued exposure, it passes through all shades of reddish-brown to a violet-black by reflected light, or a very deep brownish red, or deep garnet by transmitted

* As this paper is going to press an instance is reported in a French Journal, of three women affected with itch, who applied the strong liquid to the surface of their bodies by sponging. One died very soon, another, after lingering a few days, but the third finally recovered.

light. This change of color may be—in great measure, at least—arrested at any point by seclusion from light, and hence the lighter or darker color as usually met with is merely an indication that the manufacturer has put it up in wrappers, etc., sooner or later after distillation. This effect of light is upon the impurities, and not upon the alcohols themselves, all of these being colorless. And this mixture of them may, by repeated distillation, which is within easy practical reach of the large manufacturer, be rendered so free from these coloring substances that any ordinary prolonged exposure only produces a delicate wine-color in the mixture. This condition is desirable, and when attained, as it doubtless will be, for general sales and use, the practical limit of useful purification, even for the nicer medical uses, will have been reached, since no intrinsically better substance can be produced. Specimens of this liquid are presented herewith, labeled, as it is believed they should be in practice. One specimen is shown put up in a white glass bottle, to exhibit the black color assumed by long exposure to light. Another specimen is shown as put up in tin for the army,—a very convenient form for transportation and use.

Neither color, consistence, nor odor, however, can be relied upon as any useful indication of real value, but it happens that there is one very simple and very easy test of value which is infallible. All the useful tar alcohols are entirely soluble in water, while the useless substances with which they are naturally associated are not,—at least to any practical extent. But as some of the alcohols require a large proportion of water to dissolve them, the water in testing them should always be taken in excess. A fluidounce of the creasote well shaken with one gallon of water, and the whole passed through a small filter of two or three thicknesses of good filtering paper well wetted in the funnel at the time of using, will decide its quality at once, and the proportion of insoluble oily matters which do not pass through the filter may be roughly estimated when in sufficient quantity, by breaking the point of the filter over a graduate measure. The creasote, when of good quality, should contain from 90 to 96 per cent. soluble in this proportion of water, and then the residue which will not pass the wet filter is too small to be roughly

measured, though very easily seen, estimated, and compared with residues from other samples. Much of the impure carbolic acid, or the badly named "solution of carbolic acid," contains less than 90 per cent. of soluble alcohols, while the so-called crude carbolic acid of the markets varies very much, samples being met with of all values, from 10 or 15 per cent. up to 50 or 60 per cent. These are all proportionately useful for disinfectant purposes, and, when properly managed, for medical uses also, as far as they go. But they are greasy, tarry, dirty mixtures, difficult of management by ordinary means, and should therefore generally be rejected for common uses, and always when for medical uses. In applying the test of solubility to the creasote to determine its value, it must be remembered that in the interest of profit or gain fraud may be practiced, but for the present it is generally sufficient to see that the creasote to be tested is neither acid nor alkaline to either wet or dry test papers, and that it does not smell very strongly of sulphuretted hydrogen.

When applied to the skin of full strength it turns it white, and shrivels it somewhat, producing a smarting, tingling numbness, which is diminished by holding the part low, but increased by holding it high. It is easily washed off, but leaves a mark of red irritation, which on delicate surfaces produces desquamation even from momentary contact. The free application of sweet oil tends to allay this irritation and allay the smarting. When swallowed in quantity it is an irritant poison, and very rapid in its action. As it readily mixes in all proportions with all oils and glycerin, the very first thing to be done in any case of poisoning by it is to administer any oil that is nearest at hand, but the more bland the better, and this in large quantity proportionate to the quantity swallowed. If no other oil be near by, lard or butter are better than kerosene, but the latter should be used rather than wait even a short time for a better. As soon as practicable after the oil, an emetic, consisting of a large teaspoonful, or two teaspoonfuls each of mustard and common salt, stirred quickly into about half a pint of lukewarm water, should be given, and its operation, if not prompt, should be facilitated by draughts of lukewarm water. It is not a virulent poison in

any reasonable or probable quantity, and a thorough evacuation of the stomach will commonly ensure safety.

The uses of the creasote, undiluted and undissolved, are as yet few, and are altogether sanitary or hygienic,—never medical, and rarely as a disinfectant for medical uses. Smeared over surfaces which are out of the way of ordinary contact, and where it is not liable to be rapidly washed away by drainage or sewage, its application lasts much longer than that of any solution, and is therefore better for places not easily accessible. But it is scarcely doubtful that the same quantity applied repeatedly at intervals in solution, would produce double the useful effect. Undiluted it may be applied to the sides and ceilings of cellars, water closets, stables and out-houses, and to the mouths and throats of drains, sewers, garbage receptacles, etc., and to close alley-ways and passages. But for many of these uses it is best applied diluted with some non-drying oil, as whale oil, or other cheap animal or fish oil, or petroleum, or tar oils, but not with drying oils, such as linseed oil. When mixed with any cheap oil in proportions varying, to suit the purposes, between 10 and 25 per cent. of the good creasote, it is applicable to more numerous uses. Smeared upon wood-work or other absorbent surfaces, or even upon the coats of animals, it is much more lasting, as well as stronger in effect than the solutions, and saves much time and labor where it is important to economize these. This is the form in which it is best applied to the live-stock cars and pens of railroads, and it is a collateral advantage of this form of applying it that the oil so fixes it and holds it upon rough absorbent surfaces, that the filth which lodges and accumulates upon the surfaces to which it has been applied will be disinfected by it, and may be washed off two or three times with water, and the surfaces still retain effective quantities of the oily mixture. Wood or plastered walls can be so saturated with such mixtures as to last for a long time, but the effective influence of the agent is given off much more slowly, and is more feeble than when, in the case of watery solutions, the vapor of the vehicle passes off and carries the agent along with it into the air. This affords the plain indication for a rule that where surfaces and solid substances are to be disinfected through constant use, and through

rains and ablutions, oily mixtures are best. Where the air is to be disinfected or charged with the creasote, and where frequent aspersions can be conveniently used, watery solutions are best.

Any inert powder which may serve as a vehicle, can be used for mixing and holding this liquid for disinfectant uses. Half slaked lime perhaps forms the best powder in which to mix it, and a proportion of 10 to 20 per cent. is a good one. These mixtures are often called carbolate of lime. Saw-dust or sand make excellent vehicles for it.

Two solutions of this creasote may be usefully recognized and established as sufficient for all its general uses, whether sanitary or medicinal. One may be called a saturated solution, and the other a standard solution, such having been used under these names to some extent in the army and in some large hospitals and found convenient, during some years past.

The saturated solution is made by shaking five measures of the creasote with one hundred measures of water, and filtering the solution off through two or three thicknesses of wet paper. It is not necessary that the water should be warm, indeed it is better used at ordinary temperatures, because the filtrate, which is apt to become turbid or milky at best, becomes much more so in proportion as it is cooled down below the temperature at which it was filtered. This milkiness, though unsightly, is of no practical importance, and may be disregarded in most of the uses to which the solution is applicable. When applied to nicer uses it may be filtered a second time, after standing. If the creasote be not very thoroughly purified the solutions, on exposure to light, become of a pinkish or reddish tinge, which renders them inelegant, to say the least. The saturated solution will contain from 2 to 5 per cent. of the creasote in proportion as the latter consists mainly of the one alcohol or the other. As the creasote commonly occurs, it will contain about 4 per cent., while if made from the crystallized phenyl-alcohol or crystallized carbolic acid, it will contain 5 per cent., and will not be strictly a saturated solution, since water at summer temperatures takes up about 6·6 per cent. of the crystals, and makes a perfectly clear and colorless solution, even without filtration. At low temperatures, however, these solutions be-

come milky if holding more than 5 per cent. Hence 5 per cent. was fixed upon as the maximum strength for what is called saturated solution. In the management of the crystallized phenylic alcohol (carbolic acid) for dispensing, it is perhaps the best practice, on buying a pound bottle of it, to melt it by setting it in water at about 37° C. or 100° F., and then add water in the proportion of one fluid-ounce to the avoirdupois pound. It will then remain permanently liquid except at very low temperatures, and should be dispensed by measure, being still used as "crystallized carbolic acid." When a bottle of it has been treated in this way, the person who adds the water should indicate it by passing a pen mark through the word "crystallized" on the label, or by some other significant mark on the label. It is a curious circumstance in connection with the use of this crystallized phenylic alcohol that when thoroughly melted it will often remain liquid for days and weeks, and no agitation or moving the stopper, or other ordinary means, will cause it to recrystallize. But sooner or later a time will come when, even without change of temperature, it will be found solid. The writer has seen this crystallization commence in a pound bottle which had been liquid for many days, and be completed within a few seconds. The dropping into the liquid a particle of the crystals from another bottle will determine the crystallization at once. Cooling down by ice water will also cause it to crystallize, but it must be cooled far below its melting point.

The saturated solution is useful for many surgical and medical purposes, but chiefly as a disinfectant for pouring into infected clothing and washing infected furniture and utensils in time of epidemic or contagious disease, etc. If the circumstance developed in the experiments with dilute solutions be accepted,*

* Reference is here made to some collateral observations in the experiments with very dilute solutions which were not investigated, much less proved. And as the indications are in opposition to the generally received opinion they cannot be trusted. The bare circumstance is that dilute solutions made with water containing organic matters, appeared to give less taste and smell than when made with distilled water, and appeared to lose a part of their taste and smell on standing but a short time.

namely, that the creasote is itself destroyed or used up in proportion to what it accomplishes, it will serve as a key to its use in more or less concentrated form. It is often if not commonly used in great excess, and up to this time no one appears to know how little will serve the purposes to which it has been successfully applied.

The standard solution is a one per cent. solution, and is made by agitating one measure of either the crystallized or the liquid creasote with one hundred measures of water, and filtering through two or three thicknesses of wet paper when necessary. This appears to be the solution best adapted to the largest class of common uses of this substance, and perhaps it would not be too much to say that it subserves all but the exceptional uses. Its chief and great recommendation is that it may be profusely and even carelessly used with good average effects, without risk or danger of any kind, and without being very disagreeable to most persons, even when first used. A pint of the creasote to twelve gallons of water, or three or four pints to the barrel, makes a sufficiently definite solution for profuse general use, and those hospitals and asylums which have adopted it in this rather rude though practical way, have generally been well satisfied with the results obtained. For medical purposes, external or internal, it should be made with more accuracy, and for nicer uses should be filtered, but this filtration is addressed to the eye, rather than to any important good actually obtained by it, unless the creasote be of poor quality. With the cheaper liquids, and even with some of the dearer ones sold prior to the present time the solutions had either to be filtered, or be allowed to stand until the light oils rose to the surface and the heavy ones fell to the bottom, but much of that now produced affords good solutions, which for most disinfectant uses do not require filtration.

The method of making this solution upon the most economical scale, recommended about two years ago for army and other hospital uses, and adopted with success in some instances heard from, is to take an ordinary tight barrel to stand on one end, upon a box or other elevation in some convenient place, fitted with a common faucet placed an inch or two above the lower hoops, and having a hole bored in the head that stands upper-

most, and the bung permanently secured in place. Half fill the barrel with cold water, and add to this about three pints or three pounds of the creasote, (impure carbolic acid). Turn the barrel down upon its bilge with the faucet uppermost, and the hole in the upper end corked, and agitate it backward and forward very thoroughly. Then set it up, and fill it nearly full of water at ordinary temperatures, cork the opening, and again turn it down and agitate it well. It is then ready to be placed upon its stand, and after standing a few hours is ready for use, at a cost of not more than 20c. per gallon. In times of epidemic diseases, or any large and frequent demand, this plan is recommended to pharmacists, who might sell the solution by the pint or gallon, at say 6c. per pint, or 40c. per gallon.

The uses and applications of this solution are so numerous that it is impossible to allude here to more than a few of the prominent ones. When it is remembered that this substance in very small quantities (how small no one yet knows,) is azymotic —that is, opposed to or fatal to all the lower orders of both animal and vegetable life; and is antiseptic—that is, opposed to putrefaction or decay, preserving even the organisms which it kills. And when it is remembered that all contagious, infectious and epidemic diseases are believed, by good authorities, to be zymotic—that is, of the character of a fermentation dependent upon living organisms; and that all the processes of putrefaction and decay are zymotic also—that is, dependent upon fermentations of the kind which are caused and kept up through the agency of cell-life, or organisms of low vitality, a good key to its powers and uses is at once obtained, and at the same time a good guard against its misapplication is established. Thus it will be seen at once that it is not a disinfectant at all, in the sense of deodorizing, except in its effects upon the causes which produce some odors; and its whole reputation as a deodorizing disinfectant is unsound and fallacious. Applied to the causes and sources of most of the hurtful odors which are not purely chemical or inorganic, it at once arrests the processes which give rise to them, and thus it cuts off the supply of these emanations. But the odors already formed, as such, are probably not at all influenced by it, except in being masked and covered up by its

own overwhelming odor. All odors, to a great extent at least, follow the laws of diffusion of gases, and the sources of supply once cut off, these laws of diffusion so quickly dilute and disarm these mere results or effects, that they become practically insignificant; and it is a matter of but little moment as to exactly how the result is attained, or to what agency the credit belongs, if it was not for the undisputed fact that accurate knowledge is the essential element of the greatest success in all things. The hurtful material in all foul emanations and foul air is probably inodorous and insensible, but is endowed with vitality, and the laws of nature tend to direct this embryonic material to a soil and climate fitted for its functions of germination and reproduction. When the material fails to come under these favorable conditions it either dies, or lies dormant until the vicissitudes of nature become favorable to its development. But here the opposing influences working under the same laws come to exert their powers, and the same laws which distribute and disseminate these germs of fermentation are as ready and effective in distributing the antidote or azymotic. Hence, as an illustration, cattle acclimated to a given zymotic disease, through which they have more or less perfectly passed, disseminate the cause or seed of this disease by means of their excretions. The germs fall with the excretions upon the soil of the roads and fields over which these cattle pass, and may or may not there find the conditions necessary to their germination and growth. The excretions dry up to dust, and the winds scatter this dust and these germs over the pastures and through the atmosphere, and they are thus present in sufficient quantity, when other cattle not acclimated nor protected against the influences come within the infected locality. Carried into the lungs and stomachs of such, with the air and food, they meet with the conditions necessary to their growth and reproduction. Now if the azymotic could be distributed in the same way, there would soon be an end of zymotic disease, but with it an end of all fermentation, and an end of the present order of creation, in which fermentation performs an indispensable part.

By following out some such abstract of the present state of knowledge, gleaned from the various authorities, the safest, best

and most permanent indications to direct the uses, and prevent the abuses and misapplications of such a substance, may be easily obtained; and it remains only for the writer to mention some special uses which might not be reached through reasoning or which have been most prominently successful in practice.

In the treatment of burns and scalds this is the best application known at the present day; and so far as the intense pain and its depressing effects, during the early stages of these accidents, is concerned, it leaves little to be desired. This standard solution, or the officinal solution of creasote, applied of a strength varying somewhat with the degree of the injury and the character of the surface burned, by means of light cloths frequently wetted, very promptly relieves the pain. Upon delicate, sensitive surfaces the solution should be diluted with an equal volume of water; but upon ordinary and exposed surfaces it may be used with little or no dilution. It is a perfectly local anæsthetic, and whenever the pain and its causes are perfectly local, and partake of this character belonging to burns, it may be used with prompt good effect.

In erysipelatous inflammations, and under other circumstances of exalted sensibility, care is needed not to use solutions too strong, since such produce pain of the same character as that sought to be relieved. There is a very curious point in the relations of this substance to pain which the writer has never seen noticed, and which is worthy of note and investigation. If a part of the hand or foot be burned and painful, the pain is much relieved by putting the part in an elevated position, as is well known. If to a burnt surface the solution of creasote be applied too strong, the pain appears to be but imperfectly relieved, and if the part be then elevated the pain and tingling is much increased. This is the bare fact, confirmed by repeated observations, and when taken in connection with the circumstance previously mentioned, that the burning and irritation caused by the application of the strong creasote to the skin is increased by holding the part in an elevated position, it seems to indicate that the pain of burns, and of erysipelas, etc., may be supplanted and replaced by the pain of the creasote, when this is applied too strong or too freely; and that the test is, that while the

original pain is relieved by draining the blood out of the part, the superinduced pain, or the pain of irritation from excessive use of the creasote, is aggravated by this procedure.

Another prominent use of great importance is its power to prevent and arrest suppuration or the formation of pus. Many of the recently published results of its use for this purpose are wonderful, in many respects; and not the least wonderful of these results is the apparent impunity with which so powerful and so caustic a substance as the crystallized phenylic alcohol has been introduced between the flaps in surgical operations, and within the wounds and injuries in compound fractures, etc. This inconsiderate and heroic practice cannot, however, be needed or justified in order to obtain the best results of the agent; and he must be a bold man who originated the practice, unless he reached the results by the failure of more dilute applications. All suppurating surfaces, whether of pyogenic membrane or of altered mucous membrane, appear to be benefitted by the application; but it is often a very nice point to determine the strength, or rather the dilution, best adapted to the object in view. For gargles, washes, injections, etc., used in relation to inflammations, suppurations, etc., the standard solution is, in a large majority of cases, much too strong, even when the weaker crystallized phenylic alcohol is used. Under this division of its uses may be classed its applications in diphtheria, croup, aphthous diseases, chronic cystitis, leucorrhœa, ulceration of the rectum, fistula, abscess, carbuncle, etc. From some observations yet incomplete and unpublished, it appears to be very effective in the treatment of gonorrhœa and primary chancre, an effect well understood, if the zymotic character of these diseases be proved. In all herpetic and impetigenous diseases of the skin it is very effective. The writer has seen half a ring-worm, herpes circinatus, cured by it, whilst the other half, to which it was not applied, remained. Dilute solutions used as mouth washes soon wear out the at first unpleasant taste and odor, and when habitually used, as in the daily brushing of the teeth, they prevent the accumulation of tartar, which is a parasitic growth, and keep the mouth and teeth clean and healthy. This habitual use corrects and prevents fœtor of the breath from decayed teeth, and when taken inter-

nally corrects and prevents that which proceeds from the stomach. The internal uses of the creasote are, as yet, not well studied; they are, however, numerous and important, and present a large field for investigation, particularly in their relations to the exanthemata, and indeed to all zymotic diseases. Recently published accounts of its use, both externally and internally, in scarlatina are favorable.

From a sanitary or hygienic point of view its uses and application are more general than those of any other article, or perhaps even than all the other agents taken together. Indeed it is of almost universal applicability, with but the single important disadvantage of its disagreeable odor. This odor is, however, less disagreeable as the oils and tar are more perfectly separated, and in the best crystallized phenylic alcohol are not very objectionable to persons in general. Even when very disagreeable at first, it becomes less so, and, in a great majority of instances, soon ceases to be disagreeable at all. All the evidence that can be collected goes to show that the odor and vapor are wholesome and never hurtful, even by prolonged exposure to a saturated atmosphere. It is stated to be a tonic to those who work in it, and to have a general tendency to robust health. Its antiseptic or preservative powers have been long known, though but recently investigated, and it is now believed, on good authority, that the process of embalming used by the ancient Egyptians, whereby their mummies are handed down through thousands of years, owes its efficacy and success mainly to this substance and its homologues. Many generations of our own times have protected and preserved their meats and fish through its agency as derived from smoke, and all the preservative agency of smoke, tar, soot, etc. is derived from this group of substances. Small animals, insects, etc., killed by it dry up in the air without putrefaction, and it has been said by a French writer that 15 grammes of it would preserve an adult human body for sixty days after death. For use about the dead it is probably destined ultimately to take the place of ice, and of all modes of embalming. It is said that a dead body enveloped in cloths, kept moistened with dilute solutions, may be kept well preserved and in a natural condition,

without hurtful emanations, for any reasonable length of time, and that its free use after death from contagious or infectious diseases, destroys the influence of the diseases. When bodies are to be preserved for some time the solution should be injected into all the natural openings, and may be introduced into the abdomen and thorax, and even into the cranium, by means of a trocar and canula without mutilation. Careful injection of the blood vessels is, however, the most sure and effectual process for preservation.

In all cases of infectious, contagious and epidemic diseases the standard solution, either entire or not diluted more than its volume, should be freely used upon the bedding, clothing and utensils of the sick many times each day, by sprinkling, sponging, etc.; and the exposed parts of the body, and those soiled by dejections, may be frequently sponged off with great advantage. All bedding, clothing, etc., removed from the sick and dying, should be at once well moistened with the solution and be then immersed in water; after being washed and ironed it should be lightly sprinkled with the solution. A portion of the solution should be put into close stools, urinals, etc., immediately after these have been cleansed, to remain there and receive the next dejections. The disinfectant thus gets immediate action upon the infected matters, and they go together into the sewers under the best sanitary conditions. Walls, ceilings, carpets, floors and furniture of infected rooms should be occasionally sprinkled with the solution. This may be conveniently done by dipping the end of a common dust brush into the solution poured out into a soup plate, and then throwing the solution off the brush in a kind of shower upon the walls, ceilings, etc.

It is not only in contagious and infectious diseases that the solution is useful, but wherever deficient ventilation, or want of cleanliness, or offensive discharges corrupt the atmosphere of apartments used either by the sick or well. Its free use is fatal to all the small vermin which infest and prey upon the bodies of the diseased or healthy, and even tends to diminish the annoyance from flies and mosquitoes.

Much of the above information is gleaned from the current

Journals, foreign and domestic, and as the authorities are too numerous to be quoted, the statements are guarded by a caution which becomes necessary to avoid over-advertising a novelty which is in some risk of becoming fashionable.

Since commencing this note the writer has received from Messrs. F. Crace Calvert & Co. a series of samples of their products, which he takes occasion to exhibit to the Association in connection herewith. Their "crystallized carbolic acid, No. 1," is a very beautiful product, hitherto rarely seen among us. It is very dry and white, showing no signs of discoloration by light. The No. 2, medicinal acid, shows but little liquid, even at this summer temperature, but is not so nice as the No. 1. The No. 3 is a still lower grade, and contains much liquid. Quantities of this grade, imported by the Chief Medical Purveyor of the army a year or two ago, and put up by the writer, was almost entirely liquid, even at low summer temperatures.

The liquid specimens, Nos. 4 and 5, have not been examined for want of time, but it is supposed that the No. 5 is practically better than any. The grade No. 3 is that adopted for the use of the British army and navy, because it well subserves all the uses, medical as well as disinfectant. In connection with these is shown a specimen of the creasote put up for the use of our army during the past two years, under the name of impure carbolic acid, by the writer. It contains about 90 per cent. of the tar alcohols and has proved a most efficient article in use. This is made by the coal-tar distillers around New York, but at a much higher cost than the preparation from abroad which resembles it in appearance. A specimen is also shown of the standard solution put up unfiltered, in quart bottles, with directions for use. This was put up as cheaply as possible for the Metropolitan Board of Health, and, although unsightly and unpretending, it is really an efficient and useful disinfectant, capable of subserving almost all the general uses of the creasote.

Brooklyn, September 4th, 1868.

NOTE ON RHUBARB.

BY EDWARD R. SQUIBB, M.D.

The difficulty in getting good medicinal rhubarb within the last three years has been a cause of general complaint in this market. When the Russian government abandoned its long established practice of inspection, accumulation and annual sales of surplus rhubarb, that most valuable grade of quality disappeared from the market, and has since been entirely inaccessible, though very respectable houses still continue to sell rhubarb under that name at very high prices. When this particular grade of inspected and selected rhubarb disappeared from the markets, it was natural to expect that other grades from which this had probably been selected, and which reached the markets through other channels, would be improved by having this quality left in, for it was not generally believed that the portion rejected by the Russian Government Inspectors was destroyed in accordance with law, but that it came to market through Asiatic Turkey and other routes, and supplied the demand for inferior grades of "Turkey Rhubarb." This expected improvement of other grades, however, did not occur, and the absence of this high standard grade from the markets permitted or invited a downward tendency in both quality and price, with the result of causing much complaint from those who look to quality first, and price afterward. The effect upon the general market of losing an article of uniform high grade as a standard for comparison always at hand, though used perhaps in small proportion to the whole, is well worthy the attention of the thoughtful. Both the article and its influences upon the market are now lost, and the general market has run down in quality, though the supply is abundant, of what may, without much exaggeration, be called mere trash, to be had in second hands at prices ranging from $1.25 to $1.75 per pound, gold, fifty cents in gold per pound of this being duty.

Now, to inquire into some of the causes of this and to suggest a train of thought directed toward a remedy, is the object of this note.

Let it be remembered, first, that the market is the meeting of

demand and supply where these are mutually cancelled or satisfied, and next, that the ultimate object is always pecuniary profit or gain. The first law of all markets is that demand precedes supply in a natural order, and these bear to each other a natural relation of cause and effect. So far all is plain and simple enough, but this union of demand and supply, like the nuptials of Peleus and Thetis, is disturbed by an Apple of Discord, called gain. This apple is inscribed not "to the fairest," but in this case "to the sharpest and the shrewdest," and the scramble for it in the drug market has not the dignity of an assembly of gods. The demand is for the highest quality at the lowest price, and this dishonest demand, which is in its nature impossible, is met by dishonesty in the supply. These propositions, if true, embrace the whole difficulty, and but little thought and analysis are needed to show that price is the great obstacle and the natural antagonist to quality. Profits must be ample, and must remain so regardless of price, and with far less variation. Therefore quality becomes the most variable element in a general market, and is sure to be depressed and debased under the pressure of price. Just at this point in the order of of progression, another influence comes into the market, that of applying knowledge and skill, of whatever kind, to so cover the defects and improve the appearance of lower grades as to justify higher prices upon fictitious quality; and here the great advantages of the presence in a market of articles of a uniform high grade of quality as standards of comparison; and of knowledge and experience in the interest of high grades of quality to counteract the knowledge and skill applied in the interest of low grades, becomes most important. It is not difficult, in following back this train of mercantile influences and their results, to understand that the original difficulty is at the starting point, namely, in the demand which creates, controls, and regulates the supply; and if it then be asked where the demand arises, the answer must be that it arises with the consumer, but that it is so controlled and influenced by those who directly supply the consumer, that practically it may be said to arise with them. These latter are the members of this Association and the class and interest which they represent. To us belongs the discredit

of demanding the impossible condition of high quality and low price, and of attempting to satisfy these conditions without yielding in price. If we put on the screw to prices and keep it always turning downward, those who supply us must, in their competition, yield to us, and we should accept the result, for it is inevitable.

From 1852 to 1862, inclusive, the close importation cost price of Russian rhubarb varied between $3.25 and $4.00 per pound, the market price in first hands ranging from $3.75 to $4.50. Every piece of this was sound and good, and all were so well satisfied with it that at second hands or among the jobbers and druggists it sold easily at $5.00 and $6.00 per pound, which would now be equivalent to $7.00 and $8.40. Now the point desired to be made is that if pharmacists were only willing to pay such prices now, rhubarb of a quality fully equal to the Russian in medicinal value might be had, and would soon be as plentiful as ever it was. In proof of this statement the writer can offer the fact that he has never been without rhubarb which was fully equal to the Russian in his judgment, and that his price until just now has never been above $7.00, and is now $8.00, in consequence of unusual scarcity of high grades in the foreign markets. As the writer has never imported more than one package direct, and that from London, but has always gone through importing houses, the prices paid have been higher than if the market was supplied for a general demand. The last two packages received are exhibited at this meeting in connection with this note. The first of these is a chest of 130 pounds, imported to special order from Bremen, by B. W. Bull & Co., of New York. This cost 10*s.* 6*d.* sterling, which with the duty and charges make it cost here $3.75 gold or $5.50 currency. The contents of this chest were separated in two equal parts without any selection, and every lump of one-half was opened and examined. On separating the unsound and discolored pieces, which are considered unfit for medicinal uses, they are found not to exceed 20 per cent. of the whole. This, if deducted, brings the currency cost up to $6.60, or with the labor of opening and selecting say $6.80. This furnishes a grade of rhubarb which will be pronounced by judges as unexceptionable, and

which at $8.00 per pound pays nearly 18 per cent. profit. In addition to this the 20 per cent. of rejected lumps yields by labor about 12 or 15 per cent. of its weight of sound rhubarb as good as the larger portion, only that it is in small fragments. This, when the labor of separating is charged upon it, increases the profit on the whole to over 20 per cent. These different portions may be well seen in the chest as exhibited, although the fracture is not as bright and clear as when freshly made about ten days ago. The mode of separating the rejected portions, and the character of that which is saved may be seen. The mode of opening rhubarb adopted by the writer as a speedy and convenient one, is by means of a coarse comb of steel attached to a lever of sufficient power. The teeth of the comb are forced into each lump until the lump splits. With this simple contrivance a person can open the lumps of an entire chest in about half a day and separate the bad ones.

The last package received was a half picul chest, imported direct, through the kindness of Messrs. Allen & Hanburys, the well known house in Plough Court, London, who selected it. This package is also exhibited to the Association in connection with this note. This cost 7*s.* 3*d.* per pound in London, the courteous buyers declining to charge a commission on the purchase because they feared it did not come up to the order in quality, though the best they could do in their market. About one-fourth of the lumps, taken without selection, have been opened and examined. In comparison with the Bremen chest this is not so handsome, externally, but opens more uniformly, with fewer discolored pieces. The color of the fracture is in the main excellent, better than that of the Bremen chest, but the texture is less compact, and the odor and taste more feeble and less aromatic, besides being inferior in quality of flavor, and the rhubarb is more mucilaginous in the mouth. In short, it appears to be a much younger or less mature rhubarb, though collected, dried and preserved with more care. It is, however, of excellent medicinal quality, and though somewhat below the Bremen chest, it leaves little to be desired, and at the same time costs far less. The prime cost of this half chest is not much over $3.00, gold, or $4.35, currency, even had the usual commis-

sion for purchasing been paid. Many of the pieces in these chests are bored after the manner of the Russian Government Inspectors, some with a narrow-bladed pen-knife and others with a small tap-borer, either of which answers the purpose well; but a better instrument is found in that used for boring charcoal in blow pipe examinations. This boring is almost as critical as splitting the lumps, and exposes far less new surface to the air.

Another parcel of rhubarb, expected through the importing house of Messrs. Dodge & Olcott, of New York, promises by description to be better than either of these, though at about the same cost as the first chest.

After inspection of the two parcels exhibited it will probably be admitted that rhubarb can be had in our markets of as good, intrinsic, medicinal value to-day as ever it could, provided we are but willing to pay a price proportionate to its true value, and that price not higher than the cost of Russian rhubarb six years ago; and all will admit that, the profits being the same, importers would rather bring these into the market than the lower grades.

But now if we look for a moment at the more common rule of practice in the market, a little of the same kind of analysis will show how it works and how it affects the common supply of the market. A distant druggist or a pharmacist wants rhubarb to supply the physicians of his neighborhood and his incidental sales, and he goes to a central market, or employs a broker there, who usually does better for him, in one sense, than he could do for himself. He finds a range of prices, which, though all low, vary very much. He looks at the root or the powder, as the case may be, and is apt to think the higher prices much too high for the slighter differences in appearance, for he rarely opens the lumps, or more than two or three of them, and the powders he must take upon faith or appearance. He never thinks of the prices being all far too low, but takes the lowest, and the merchant who has this makes the sale. A less fortunate neighbor and competitor of this merchant sees this and finds that he must buy his rhubarb lower next time. The time arrives, and he sees a lot which can be picked over, and the best of it dusted with some yellow powder will present a fair appearance, and the re-

mainder can be made into a handsome powder by skillful millers. The price gets a shade lower and he buys. The importer of this may have sold the lot whose price successfully attracted the pharmacist, and thus made two sales where the importer of the better and unsuccessful quality only made one sale. Or, if both grades are held by the same importer he finds the lower one go off two to one. He says "I have mistaken my market, and before these higher priced parcels are sold I must have some more of the lower, or my neighbors will get my trade away from me." His orders go out promptly with limitations which are sure to avoid the mistake for the future. And thus the common market is largely supplied, the lower grades going off rapidly, the higher grades with very slow sale and much trouble, while the highest disappear from the market, or are only heard of once in a while through some "Miss Nancy" who is rather nice than wise.

Rhubarb is a very delicate and sensitive drug, and much of it bears evidence of having been gathered immature or at a wrong season, and much of it of having been spoiled in the drying, but far more appears to get damaged in transportation, so that it is not improbable that a very small part only of the total product ever reaches the market in a normal condition. No matter how or where it is damaged, it must be sold, and if it can be properly "doctored" there is but little of it that cannot be made to sell pretty well, either upon faith and the reputation of the seller, or upon appearance or upon both.

The following case well illustrates this point:

In March last Messrs. A. A. Low & Brother entered in the New York Custom House a lot of twenty-five cases of Chinese rhubarb, and by sample cases in their office offered the rhubarb for sale. The cases shown as samples presented the appearance of rhubarb of a low grade, the lumps being dark and discolored throughout, and some of them hollow. Mr. A. A. Low accounted for these appearances by the circumstances that the ship had had a very long passage, having put back once or oftener, and that the rhubarb not having been properly enclosed in sheet lead or tin had become damp and discolored, and that cockroaches

had eaten out the interior of the lumps. The rhubarb, when purchased in China, was of strictly prime quality and at the highest cost of any imported by him, and the dampness, discoloration and insect damage did not interfere materially with its intrinsic value. Within a few days, however, the examiners at the custom house decided that the quality was such as to prevent its being legally admitted into the country. The owners did not avail themselves of the right to appeal from this decision, but sent it to London, where, in their interest, Messrs. Maclean, Maris & Co. bought a lot of superior rhubarb to mix with it, and had the two powdered together by Messrs. Allen & Co, of London. A portion of the powder (1000 lbs.) was reshipped to this port by Messrs. Maclean, Maris & Co., consigned to Messrs. G. W. Dow & Sons, the drug brokers who usually sell the drugs imported by Messrs. A. A. Low & Brother. The powdered rhubarb passed the custom house unsuspected and unquestioned, having an excellent appearance, and was offered for sale in this market in August, with a letter from Messrs. Maclean, Maris & Co., giving an outline of their management of the shipment.

The reasons why this instance is published so prominently are, first, because it is strictly true, and its history unusually complete in every step, and because it is believed to be a good example of a not unfrequent practice that is generally better concealed.

Secondly, because the principals in the transaction are well known, and known to be of the highest commercial standing, and defend the transaction as being entirely right and proper; and because if they should be right, this writer is totally wrong.

And thirdly, to make a point which does not appear in the transaction: This is, that Mr. Low has good cause of complaint though not in a position to use it, that the officers of the custom house have passed rhubarb for him which was quite as bad as this, though it cost far less, a circumstance well known to the writer.

Brooklyn, Sept., 1868.

SPECIMENS OF INDIGENOUS DRUGS.

BY EDWARD R. SQUIBB, M. D.

At the request of the writer, Dr. Wm. Manlius Smith, of Manlius, N. Y., forwarded three specimens of important indigenous drugs for presentation to the Association, and the attention of the members is invited to these in illustration of the advantages of knowledge and skill in collecting, preparing and preserving medicinal agents. For many years past some of these important drugs have been collected for the writer by Dr. Smith, and it may be useful that such should be seen, if only as standards for comparison.

PODOPHYLLUM.

The rhizome and radicles are here collected together, since Mr. Saunders, of London, Canada West, has pretty clearly shown that the Pharmacopœia is in error in directing the rhizome only. The common practice of the market is to include at least the larger of the radicles. This specimen is thinner than that commonly met with, but is of a darker color, less starchy fracture, and has far more of the peculiar odor. These points are characteristic of its having been collected at the proper season and skillfully prepared. The proportion of resin has doubtless an intimate relation to these points.

VERATRUM VIRIDE.

The rhizome alone is here collected in accordance with the officinal directions, as it has not yet been shown that the radicles in the case of this plant are equal in medicinal value with the rhizome, as in the podophyllum. The rhizome, taken at the proper season, is sliced thin and dried with care and judgment, in which condition it does not appear to deteriorate by keeping even for several years.

CONIUM.

The unripe fruit, generally called conium seed. In regard to this article the Pharmacopœia is greatly in error in taking the leaves instead of the unripe fruit, since the latter yield from five to seven times as much conia, and are more uniform. Beside this they carry with them unmistakable evidences of quality and

time of collection. This specimen, like the others, is not unusually clean or good, but is taken without selection from a larger quantity. It is, however, of this year's production. Much has been written of late, in London, as to the want of medicinal effect from this plant and its preparations, and why it appears so inefficient there it is difficult to tell. It is the intention of Dr. Smith, who is investigating the subject of conium for the N. Y. State Medical Society, to send some such as this to London, that it may be compared with that from which their heroic doses were taken.

Brooklyn, Sept., 1868.

ON THE SO-CALLED OIL OF STILLINGIA.

BY W. SAUNDERS, LONDON, ONT.

Being called on lately to prepare some of this remedy I referred to the American Dispensatory, edited by Dr. King, for information on the subject. After reading the details of the process I met with remarks to the following purport: That the recent root yielded a larger proportion of oil than the dried, but that the article made from the dried root contained the "real active principle" but little impaired. In the next paragraph the author says that "*the dried root is inert or nearly so*," hence its powder is of no utility. Not knowing how to reconcile these statements, how a preparation containing so much of the "real active principle" could be made from an inert or nearly inert root, I proceeded to test the value of the dried root by experiment.

I had in my possession some stillingia, which, after being dried and crushed, had been left accidentally exposed in an open barrel to the full action of light and air for nearly a year. Of this, five pounds were taken and ground in a Swift's drug mill as fine as possible without sifting. It was then moistened with alcohol, packed in a percolator and allowed to stand twenty-four hours, when fresh spirit was gradually added until nine pints of tincture were obtained, when the root was sufficiently exhausted. Water was added to displace the alcohol remaining in the root and the whole resulting liquid placed in a still, heated

by a water bath to recover the spirit. The yield of oil was six and a quarter ounces, to which, on account of its extreme thickness, I was obliged to add one ounce of alcohol; with this addition it was very much denser than the commercial article.

On comparison I found the oil thus prepared *much* superior to any I had purchased, and my supplies have been obtained from one of the most reliable houses in Cincinnati, where, according to Dr. King, the very best articles of this class are to be had. My preparation had the odor, taste and peculiar acridity of the root in a very marked degree; a very small quantity being sufficient to leave a burning impression on the palate for hours after tasting it; whereas the Cincinnati oil, which is supposed to be made from the fresh root, is in all these respects very inferior. I regret I was unable to procure any of the recent root, as I should like to have thoroughly tested the point as to the relative quantity as well as quality obtainable from it as compared with the dry root.

Striving to arrive at some conclusion as to the comparative merit of the preparation I had been buying, I took two fluid-drachms and exposed it in a shallow pan to the action of the air for six hours. At the end of that time I was surprised to find that it had lost more than five-sixths of its bulk by spontaneous evaporation, the product having the consistence of a soft, solid extract and weighing nineteen grains. As sent into the market this oil has a smell of ether, intended, I suppose, to meet the prejudices of the profession who favor the ethereal over the alcoholic preparation. I observed that the ethereal odor disappeared in a short time upon exposure to the air, and that the nineteen grains of resulting extract has but little taste or acridity. The following formula would be about correct for the production of this precious article: Take of solid alcoholic extract of stillingia (quality a matter of little consequence) 76 grains; alcohol 6 or 7 drachms; ether sufficient to make one ounce. For this compound you are charged from 80 cents to $1.00 per oz.

I fear that there is more mixing and adulteration carried on in the manufacture of these eclectic remedies than in any other department of pharmaceutical labor, for I have rarely, if ever, made a preparation according to any of the published formulas

which did not prove very much superior in quality to any similar article I could buy from the dealers.

From the material I have had to work on I can come to no conclusion as to the relative value of the oil of stillingia made from the recent and dried root. My opinion is that the preparation from the dried root contains all or nearly all the active matter of the drug, and that there is no necessity for recommending the fresh root to be used in this case. All such instructions should, I believe, be avoided where possible, since their tendency is to confine the manufacture of the article chiefly to the localities where the root grows most abundant—an arrangement for many reasons not desirable.

Samples are herewith submitted. No. 1, is the oil of my own preparation. No. 2, that purchased in Cincinnati. No. 3, contains the product remaining after the exposure of the Cincinnati oil to the action of the air.

LIQUOR BISMUTHI.

BY GEORGE F. H. MARKOE.

The writer has been called upon to prepare this solution quite frequently, and in considerable quantities, and after a careful trial of all the published formulas for its manufacture has found some objection to all of them. The writer cheerfully acknowledges his indebtedness to Mr. N. Gray Bartlett, to whom we owe the first good working formula given in the *Am. Jour. Pharm.*, Jan., 1865. Mr. Albert E. Ebert, in the same journal, Jan., 1866, gives an improvement on Mr. Bartlett's process by which he avoids the use of crystallized citrate of potassa, and forms the citrate of bismuth by adding citric acid to the nitrate of bismuth and then adding hydrate of potassa, by which means citrate of bismuth is precipitated and nitrate of potassa is obtained in solution, and is got rid of by washing the bismuth salt on a filter. Ebert's process is a good one, indeed the best that has been published, and the only objection the writer has to it is the use of caustic potassa to neutralize the nitric acid. The idea of adding the citric acid to the solution

of nitrate of bismuth, must in justice be credited to Mr. Thos. P. Blunt, who first suggested it in the *Lond. Pharm. Journ.*, May, 1865.

The objections to caustic potassa are, that great care must be used to avoid an excess, from the fact that citrate of bismuth is freely soluble in potassa, and thus involves a loss of bismuth if any excess happens to be used; caustic potassa is a very troublesome chemical to keep in good condition, being very prone to attract both moisture and carbonic acid from the atmosphere, by which means it becomes in a great degree unfitted for use. It is a difficult matter to get caustic potassa free from carbonate, and still more difficult to keep it so, even if free from this impurity when the bottle is first opened. Another objection is that caustic potassa is expensive.

The following modified process offers a substitute for the caustic potassa that gives excellent results. This substitute is well crystallized carbonate of soda, a salt that can at all times be obtained of good quality at a very low price. Citrate of bismuth is less soluble in carbonate of soda than in caustic potassa, hence a gain is made by using the former.

The process is the following:

Take of subcarbonate of bismuth, one troyounce.
Citric acid (in powder), 420 grains.
Nitric acid (sp. gr. 1·42), one and a half troyounces.
Crystallized carbonate of soda, 1150 grs.
Distilled water.
Alcohol, each a sufficient quantity.

Dissolve by gradual addition the subcarbonate of bismuth in the nitric acid, and when the solution is completed dilute it with a fluidounce of distilled water, add the citric acid, stir until it is dissolved. Dissolve the carbonate of soda in ten fluidounces of distilled water and gradually add the soda solution to the bismuth solution, constantly stirring the mixture. After standing for six or eight hours, transfer the mixture to a moistened paper filter, and wash to remove nitrate of soda. Transfer the magma to a mortar or evaporating dish and carefully add water of ammonia until the citrate of bismuth is dissolved. Dilute the solution with an equal volume of distilled water and treat

half a fluidounce (14·7 cubic centimetres) with an excess of sulphide of ammonium, or, better still, "*sulphide of sodium*," (as suggested by the writer in a paper presented to this Association, and published in the Proceedings for 1866, 252); collect and wash the sulphide of bismuth on a tared filter, (which has been exposed to the heat of a water bath, previous to being tared), and heat on a water bath until thoroughly dry; allow the filter and contents to cool under a bell glass over sulphuric acid, and carefully weigh. Multiply the weight of the sulphide of bismuth by the fraction ·908 to find its equivalent in teroxide of bismuth. Apply the same ratio to the remainder of the bismuth solution, and dilute it to such a degree that each fluidrachm shall contain one grain of teroxide of bismuth, seven-eighths of which measure must be made with distilled water, and the remainder with alcohol. The average product of liquor bismuthi obtained in several trials was 51 fluidounces, being about two per cent. better results than those obtained by Mr. Ebert's process.

Boston, Mass.

NOTE ON CONFECTION OF SENNA.

BY GEORGE F. H. MARKOE.

The writer has been much annoyed by the failure of the present officinal formula to give a satisfactory product in respect to consistence and keeping qualities.

The following modified process is offered as affording a remedy for these objections, giving a confection of better consistence and one that is not liable to spoil by fermentation.

Take of	Senna in fine powder,	8	troyounces.
	Coriander " "	4	"
	Purging cassia, bruised,	16	"
	Tamarind,	10	"
	Prune, deprived of seed,	7	"
	Fig,	12	"
	Sugar,	50	"
	Water a sufficient quantity.		

Digest the purging cassia and tamarind with two pints of water, and separate the pulp by means of a coarse sieve. Digest the residue with a pint of water and separate the pulp and add to the first portion; in this pulp digest the prune and fig, previously chopped or cut in fine pieces, (a sausage machine serves an excellent purpose), and then pass the pulp through a coarse sieve and then through a fine one; in this pulp dissolve the sugar by the heat of a water bath and then add the senna and coriander, and thoroughly mix the whole, and evaporate if necessary by a water bath until the finished product weighs ninety-six troyounces.

It will be seen that no change is made in the medicinal activity of the preparation, the quantity of sugar being increased and the quantity of water decreased. The writer in following the officinal formula on the large scale, found that the preparation would keep very well through the winter, but would ferment in hot weather.

These suggestions are offered as a slight contribution to the revision of the Pharmacopœia, in 1870. A somewhat careful examination of the market, leads the writer to conclude that very much of the confection of senna offered for sale is not made in any degree in conformation with the officinal formula.

Boston, Mass.

ON EXTRACT OF MEAT.

BY FRANK J. TOURTELOT.

In consequence of the many controversies that have recently taken place between certain European chemists, all, apparently, more or less directly interested in the successful manufacture and introduction of the different "extracts of meat" now offered for sale in Europe, we have thought that the formula of a preparation of a similar nature, prepared by us, and for the last seven years extensively used in this country by the United States medical department and in private practice, might prove of some slight interest to the members of this Asssociation. We therefore beg leave to submit our process of its manufacture, together with a specimen of our product, as also a sample of extract of meat prepared in accordance with Liebig's formula.

After numerous and repeated experiments, and with the results kindly furnished us by several prominent physicians, we have been led to believe that an "extract of flesh" containing the *albumen* of the meat, would prove more desirable and acceptable than one deprived of that highly essential element, and with that view have based our process upon the simple principle of percolation, as applied to the preparation of medicinal fluid extracts.

10,000 lbs. (this being the quantity usually used at one operation) of fresh beef, deprived of bone, fat and sinew, finely chopped, are macerated with cold water for about two hours. Steam is then introduced into the vats in which it is contained until the temperature of the mass indicates 120° Fahr; care being taken to stir the meat frequently. The resulting liquid is then drawn off, strained and set aside. To the residue, water is again added, heat applied to point of ebullition, and so continued for some hours; the resulting liquor is then obtained by gentle pressure, and is immediately transferred to the vacuum pan which receives the *first drawing*, when the preceding is reduced to one-fourth its original bulk. The evaporation is then continued until one pound of the extract in question represents twenty pounds of pure meat, when it is poured in china jars, then covered with waxed paper, and recently, as tending towards its preservation, we coat the paper with tincture of tolu. It will be observed in the foregoing that the object in drawing off the first maceration at a low temperature is to obtain the albumen in almost an unaltered condition, and to *retain it*, by adding it to the result of the second operation, *only* when the latter shall have attained the necessary consistence to preserve it.

The sample of "Liebig's extract" made by us is similar in *color* and *taste* to the South American preparation obtained from Messrs. Van Abbot & Co., London. Recently a sample of our product was subjected to analysis by Dr. F. Mahla, and found to contain too great proportion of water, as also a small quantity of coagulated albumen, that had passed through the strainer. These defects having been remedied, we believe the specimen now before the Convention is similar in composition

with that sold in Europe. We cannot understand why so exorbitant a figure should be asked in Europe for the different "Liebig's extracts" in their market. It certainly can be sold at one-half the price now asked for it, and still afford the manufacturer a handsome profit.

The sample of extract of mutton, also submitted, represents forty times its weight of clear meat and is made by *our* process.

The meat biscuits represent four pounds of fresh beef to each pound of biscuit.

Chicago, Ill.

SECRET NOSTRUMS.

BY A. THEODORE MOITH.

For the last sixteen years our Association has done a good fight in combatting ignorance, humbug and mercenary motives in our particular field.

Without any material or moral aid from government or legislatures worth speaking off, we endeavored to clear our profession of a good deal of rubbish and infuse or inoculate a humanizing spirit in our calling.

Like a gardener, it must be our effort to keep weeding our garden of all noxious weeds, and remorselessly pull them up by the roots.

Quacks and quack medicines are shooting up high all around us steadily; and to keep these down, there appears to me one of the most effectual remedies, the following, which I submit to your judgment:

Let every member devote once in a while a leisure hour or two to the analysis and investigation of some quack medicine, or, if he is acquainted with the ingredients of one, let him send the formula to our Secretary, and every year there could be in our Proceedings a space devoted to publication of the name, composition, actual cost price and retail price of some of these vaunted articles.

This course of treatment, pursued in Germany, by Messrs. Wittstein, of Munich, and Jacobsen, of Berlin, has proved quite

effectual as a damper on the nostrums. And why should it not here, and be done by us? With me and likely with many other members it would be quite a labor of love.

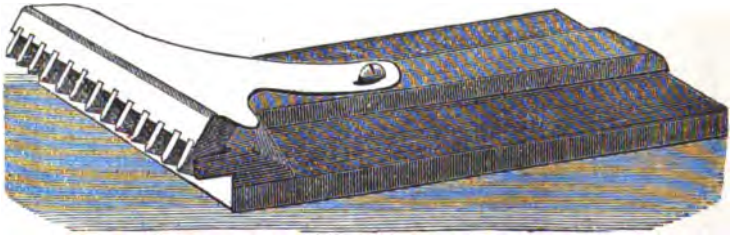
Let the subject of investigation not only reach medicines, but dietary articles, perfumery, cosmetiques, hair nostrums, stomach killers—I mean bitters.

The contributor's name need only be known to the Secretary or compiler of the Proceedings.

What a nice curb could our society place in this way on the luxuriant crop of quacks, deception and extortion.

Let us assert our true position as enemies of all deception; and the great mass of the people, always true to truly benevolent actions, will see in us their true guardians of health and life.

Fishkill Landing, Dutchess Co., New York.



LITTLEFIELD'S PILL ROLLER AND CUTTER.

This little apparatus, which was exhibited by Geo. F. H. Markoe, is designed to facilitate the labors of the dispensing pharmacist; its great simplicity and efficiency render it well worthy of notice in our Proceedings. It will hardly be necessary to say that it is not designed to supersede the use of the regular pill machine, when large numbers of pills are to be made.

The sample exhibited consists of a flat piece of mahogany six inches long, a little over three inches wide and one quarter of an inch thick, made perfectly flat on the face, with a T-shaped piece secured to the back, the cross of the T projecting seven-

sixteenths of an inch over the end of the face board; the projecting piece is cut through with slots three thirty-seconds of an inch wide and one-fourth of an inch apart from their centres; to the back of the straight part of the T a piece of German silver, also somewhat T-shaped, is secured by a screw at one end, and carries as many pieces of thin metal fixed at right angles to it as there are slots in the projecting end piece; these pieces of metal are sharpened at one end, and of such length that they shall reach from the back of the T piece to the face of the roller board.

When the pill mass is rolled out to the desired length, it is brought under the projecting cross piece, and the metal cutters are pressed down on it, thus dividing the mass into any desired number of pieces, which may be rounded as usual by the fingers.

The illustration it is hoped will make this description entirely intelligible.

LIST OF SOCIETIES, LIBRARIES, JOURNALS AND INDIVIDUALS,

To whom complimentary copies of the Proceedings of this Association are forwarded.

The State Libraries of all the States of the Union.

Maine Pharmaceutical Association,	Portland,	Maine.
Bowdoin College,	Brunswick,	"
Dartmouth College,	Hanover,	New Hampshire.
Amherst "	Amherst,	Massachusetts.
Harvard University,	Cambridge,	"
Massachusetts College of Pharmacy,	Boston,	"
City Library,	"	"
" Hospital,	"	"
Boston Medical and Surgical Journal,	"	"
" Athenæum,	"	"
University of Vermont,	Burlington,	Vermont,
Brown University,	Providence,	Rhode Island.
Yale College,	New Haven,	Connecticut.
College of Pharmacy of the City of N. Y.	New York,	New York.
American Druggists' Circular,	"	"
New York Medical Journal,	"	"
Astor Library,	"	"
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Long Island Historical Society,	Brooklyn,	"
Philadelphia College of Pharmacy,	Philadelphia,	Pennsylvania.
American Journal of Pharmacy,	"	"
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American Journal of Medical Sciences,	"	"

Medical and Surgical Reporter,	Philadelphia,	Pennsylvania.
Dental Cosmos,	"	"
Linnæan Society,	Lancaster,	"
Maryland College of Pharmacy,	Baltimore,	Maryland.
University of Maryland,	"	"
Smithsonian Institution,	Washington,	Dist. Columbia.
Congressional Library,	"	"
Surgeon-General U. S. Army,	"	"
Pharmaceutical Association of the District of Columbia,	"	"
Richmond Medical Journal,	Richmond,	Virginia.
Nashville Journal of Medicine & Surgery,	Nashville,	Tennessee.
University of Louisiana,	New Orleans,	Louisiana.
Cincinnati College of Pharmacy,	Cincinnati,	Ohio.
Cincinnati Academy of Medicine,	"	"
Cincinnati Lancet and Observer,	"	"
Dr. Langdon, Longview Lunatic Asylum,	"	"
Wayne Medical Society,	Richmond,	Indiana.
Western Journal of Medicine,	Indianapolis,	"
Detroit Review of Medicine & Pharmacy,	Detroit,	Michigan.
University of Michigan,	Ann Arbor,	"
Chicago College of Pharmacy,	Chicago,	Illinois.
" Medical Examiner,	"	"
" " Journal,	"	"
St. Louis College of Pharmacy,	St. Louis,	Missouri.
" Medical and Surgical Journal,	"	"
" Medical Reporter,	"	"
" Academy of Science,	"	"
" Mercantile Library,	"	"
" Public School Library,	"	"
Leavenworth Medical Herald,	Leavenworth,	Kansas.
Pacific Medical and Surgical Journal,	San Francisco,	California.
Montreal Chemists' Association,	Montreal,	Canada.
Canadian Pharmaceutical Society,	Toronto,	"

Sociedad de farmacia argentina, Prof. Carlos Murray, Buenos Ayres.
British Pharmaceutical Conference, Dr. J. Attfield, London.
Pharmaceutical Journal and Transactions, London.
Chemical News, London.
Chemist and Druggist, London.
London Lancet, London.
British Museum, London.
Liverpool Chemists' Association.
Pharmaceutical Society at Edinburgh.
Academie Royale des Sciences de Belgique, Bruxelles.
Société de Pharmacie de Bruxelles.

Journal de Pharmacie d'Anvers.
Société de Pharmacie, Mr. Henri Buignet, Sécrétaire, Paris.
Academie des Sciences, Paris.
Journal de Pharmacie et de Chimie, Paris.
Répertoire de Pharmacie, Paris.
Schweizer Apotheker-Verein, Mr. R. Lindt, President, Bern.
Dr. F. A. Flückiger, Bern.
Schweizerische Wochenschrift für Pharmacie, Mr. Gruner, Bern.
Oesterreichischer Apotheker Verein, Wien.
Oesterreichische Zeitschrift für Pharmacie, Wien.
K. K. Gesellschaft der Aerzte, Dr. Hauke, Secretary, Wien.
K. K. Akademie der Wissenschaften, Wien.
K. Bayer, " " München.
Neues Repertorium für Pharmacie, Prof. Buchner, München.
Vierteljahresschrift " " Prof. Wittstein, München.
Neues Jahrbuch für Pharmacie, Dr. Vorwerk, Speyer.
Archiv der Pharmacie, Prof. Dr. H. Ludwig, Jena.
Chemisches Centralblatt, Dr. Knop, Leipzig.
Jahresbericht für Chemie, &c., Prof. Dr. H. Will, Giessen.
Jahresbericht für Pharmacognosie, Pharmacie und Toxicologie, Prof. Dr. Wiggers, Göttingen.
Annalen der Chemie und Pharmacie, Prof. Dr. Wöhler, Göttingen.
K. Akademie der Wissenschaften, Göttingen.
" " Berlin.
Pharmaceutische Central-Halle, Dr. H. Hager, Berlin.
Pharmaceutische Zeitung, Bunzlau.
Pharmaceutische Gesellschaft in St. Petersburg, Dr. A. Casselmann, St. Petersburg.
Pharmaceutische Zeitschrift für Russland, St. Petersburg.

LIST OF PUBLICATIONS RECEIVED

For the American Pharmaceutical Association.

Societies and Editors are respectfully requested to forward all publications intended for the American Pharmaceutical Association to the Permanent Secretary,

JOHN M. MAISCH,
1607 Ridge Avenue, Philadelphia, Pa.

American Journal of Medical Sciences, Philadelphia.

Dental Cosmos, Philadelphia.

Pacific Medical and Surgical Journal, San Francisco. One number.

The Pharmacist, Chicago.

The Prescriber's Pharmacopœia. Third edition, by Thomas F. Cock, M. D. New York: S. S. & W. Wood, 1853.

The Practitioner's Pharmacopœia and Universal Formulary. By John Foote, M. R. C. S., with corrections and additions by an American Physician. New York: S. S. & Wm. Wood, 1855.

Adulterations of various substances used in Medicine and in the Arts. By Lewis C. Beck, M. D. New York: S. S. & Wm. Wood, 1846.

Roscoe's Chemistry, New York.

Conspectus of the Pharmacopœias, &c. By Anthony Todd Thomson, M. D., F. L. S.; edited by Charles A. Lee, M. D. New York: William Wood, 1862.

The Essentials of Materia Medica and Therapeutics. By Alfred Baring Garrod, M. D., F. R. S. Second edition. New York: Wm. Wood & Co., 1865.

The Code of the State of Georgia. Prepared by R. H. Clark, F. R. R. Cobb and D. Irwin; revised and corrected by David Irwin. Atlanta, Georgia, 1867.

Dental Materia Medica. Compiled by James W. White. Philadelphia: Samuel S. White, 1868.

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1. Uber den gegenseitigen Einfluss der Chemie und Mineralogie, von Dr. J. N. Fuchs, 1824.
2. Die Chemie in ihrem Verhältnisse zur Physiologie und Pathologie, von Dr. Max Pettenkofer, 1848.
3. Ueber den Antheil der Pharmacie an der Entwicklung der Chemie, von Dr. L. A. Buchner, Jr., 1849.
4. Ueber den Chemismus der Vegetation, von Dr. A. Vogel, Jr., 1852.
5. Ueber die Physik der Molekularkräfte, von Prof. Dr. Jolly. 1857.
6. Erinnerung an Mitglieder der mathematisch-physikalischen Classe der K. Bayr. Akademie der Wissenschaften, von Dr. C. Fr. Ph. von Martius, 1859.
7. Die Bedeutung moderner Gradmessungen, von Dr. C. Max. Bauernfeind, 1866.

Neue Beobachtungen zur Entwicklungsgeschichte des Meerschweinchens, von Prof. Dr. Th. L. W. Bischoff. München: 1866. Mit 4 Tafeln Abbildungen.

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CONSTITUTION

OF THE

American Pharmaceutical Association.

PREAMBLE.

Whereas, The advancement of Pharmaceutical knowledge and the elevation of the professional character of Apothecaries and Druggists throughout the United States are dear to us in common with all well disposed pharmaceutists; and *whereas*, a large portion of those in whose hands the practice of pharmacy now exists are not properly qualified for the responsible offices it involves, chiefly by reason of the many difficulties that impede the acquirement of a correct knowledge of their business:—

Therefore, We, the members of a Convention now met at Philadelphia, [September, 1852,] composed of Apothecaries and Druggists from different sections of the Union, and from all the Colleges and Societies therein existing, with the object of deliberating on the condition of our profession, do hereby resolve and constitute ourselves into a permanent Association, to meet annually, at such times and places as may hereafter be determined, for more effectually accomplishing the objects for which we are now assembled, and do now adopt the following

CONSTITUTION.

Article I.

This Association shall be called the American Pharmaceutical Association. Its aim shall be to unite the educated and reputable Pharmaceutists and Druggists of the United States in the following objects:

1st. To improve and regulate the drug market, by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration.

2d. To establish the relations between druggists, pharmaceutists, physicians and the people at large, upon just principles, which shall promote the public welfare and tend to mutual strength and advantage.

3d. To improve the science and the art of pharmacy by diffusing scientific

knowledge among apothecaries and druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4th. To regulate the system of apprenticeship and employment so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.

5th. To suppress empyricism, and as much as possible to restrict the dispensing and sale of medicines to regularly educated druggists and apothecaries.

Article II.—*Of the Members.*

Section 1. Every pharmaceutist and druggist, of good moral and professional standing, whether in business on his own account, retired from business or employed by another, and those teachers of pharmacy, chemistry and botany who may be specially interested in pharmacy and materia medica, who, after duly considering the objects of the Association and the obligations of its Constitution, are willing to subscribe to them, are eligible to membership.

Section 2. The mode of admission to membership shall be as follows: Any person eligible to membership may apply in writing, with the endorsement of two members in good standing, to any member of the Executive Committee, who shall report his application to the said Committee.

If after investigating his claims they shall approve his election, they shall, at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present on ballot.

Section 3. No person shall be considered a member of this Association until he shall have signed the Constitution, and paid into the Treasury the sum of three dollars as an initiation fee and the annual contribution for the current year. All persons who become members shall be considered as permanent members, but may be expelled for improper conduct by a vote of two-thirds of the members present at any annual meeting.

Section 4. Every member shall pay in advance into the hands of the Treasurer the sum of three dollars as his yearly contribution, and is liable to loose his right of membership by neglecting to pay said contribution for three successive years. Members shall be entitled, on the payment of five dollars, to receive a certificate of membership signed by the President, one Vice President, Permanent Secretary and Treasurer, covenanting to return the same to the proper officer on relinquishing their connection with the Association.

Section 5. Resignation of membership shall be made in writing to the Permanent Secretary or Treasurer; but no resignation shall be accepted from any one who is in arrears to the Treasurer. All resignations shall be acknowledged in writing by the officer who receives them, and shall be reported at the next annual meeting.

Section 6. Every local Pharmaceutical Association shall be entitled to five delegates in the annual meetings, who, if present, become members of the Association on signing the Constitution, without being ballotted for.

Section 7. Pharmaceutists, Chemists and other scientific men, who may be thought worthy of the distinction, may be elected honorary members upon the same conditions and under the same rules as appertain to active members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office or to vote at the meetings.

ARTICLE III.—*Of the Officers.*

Section 1. The officers shall be a President, two or more Vice Presidents, a Permanent Secretary, a Local Secretary and a Treasurer, who shall, with the exception of the Permanent Secretary, be elected annually, and shall hold office until an election of successors.

Section 2. The Permanent Secretary shall be elected to hold office permanently during the pleasure of the Association; he shall receive from the Treasurer an annual salary and the amount of his travelling expenses in addition to his salary.

Section 3. The President shall preside at the meetings, and administer the rules of order usual in deliberative assemblies. He shall nominate all special committees, except a majority of the members present direct a resort to balloting or other means.

He shall sign the certificates of membership, approve all foreign correspondence, and countersign orders on the Treasurer.

He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects and the object it has in view, together with such suggestions for its future management as may seem to him proper.

Section 4. In case of the temporary absence or inability of the President, his duties shall devolve on one of the Vice-Presidents in the order of their names.

Section 5. The Permanent Secretary shall keep fair and correct minutes of the proceedings of the meetings, and carefully preserve on file all reports, essays, and papers of every description received by the Association, and shall be charged with the necessary foreign and scientific correspondence, and with the editing, publishing and distributing the Proceedings of the Association under the direction of the Executive Committee. He shall furnish the Chairman of every special Committee with a list of its members and a copy of the minute of its appointment, and shall notify every member of the time and place of each annual meeting. He shall be a member of the Executive Committee.

Section 6. The Local Secretary shall be elected annually at the last session of the annual meeting, and shall be a resident of the city at which the next annual meeting of the Association is to be held. It shall be his duty to assist the Permanent Secretary in his duties, to co-operate with any local committee in making arrangements for the annual meeting, to correspond with the Chairmen of the several Committees and with other members, in advance of the meeting promotive of its objects, and to have custody of specimens, papers

and apparatus destined for use or exhibition at the meetings. He shall act as Secretary at the first meeting, or until another shall be appointed, in case of the absence of the Permanent Secretary.

Section 7. The Treasurer shall collect and take charge of the funds of the Association, and shall also hold and issue the certificates of membership. He shall pay no monies unless by the order of the chairman of one of the standing or of a special committee, authorized to appropriate funds of the Association, such order to be countersigned by the President.

He shall present a statement of his accounts at each annual meeting, that they may be audited. He shall also report to the Executive Committee, previous to each annual meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership after having been officially disconnected with the Association, and duly notified to do so.

Article IV.—*Of the Standing Committees.*

Section 1. There shall be five standing committees elected annually—an Executive Committee, a Committee on the Progress of Pharmacy, a Committee on the Drug Market, each to consist of five members; a Committee on Scientific Queries and a Business Committee, each to consist of three members.

Section 2. The Executive Committee, of which the Permanent Secretary shall be one of the members, shall have charge of the revision of the roll, the investigation of application for membership, and the publication of the Proceedings. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, also the names of any who, having become disconnected with the Association, refuse to return their certificates of membership as provided by the Constitution.

The annual publication of the Proceedings shall contain the corrected roll of members, full minutes of the several sittings, the Report of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes and preparations as the Executive Committee may deem worthy of insertion. At least one copy shall be furnished each member of the Association.

Section 3. The Committee on the Progress of Pharmacy, of which the Local Secretary shall be one of the members, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy and the collateral branches, and on any new works bearing on these subjects published in this country or in Europe.

Section 4. The Committee on Scientific Queries shall report, near the close of each Annual Meeting, a proper number of questions of scientific and practical interest, the answers to which may advance the interests of Pharmacy, and shall procure the acceptance of as many such questions for investigation as may be practicable, and report before the next succeeding Annual Meeting.

Section 5. The Business Committee shall be charged with the transmission of unfinished business from one Annual Meeting to another, with collecting

arranging and expediting the business throughout the various sessions of the Annual Meeting.

ARTICLE V.—*Of the Meetings.*

Section 1. The meetings shall be held annually, or as the Association may from time to time determine; provided, that in case of failure of this from any cause, the duty of calling the Association together shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

Section 2. At the opening of each annual meeting, the President, or, in case of his absence, one of the Vice-Presidents shall call the meeting to order and preside until after an election of officers; in case the President and Vice-Presidents are absent, this duty shall devolve on the chairman of the Executive Committee, or, in his absence, on any member chosen by vote of those present.

In the absence of the Permanent Secretary the President shall appoint a Secretary *pro tempore.*

The order of business at the first session of each annual meeting shall be as follows:

1st. The appointment by the President of a committee of three persons to examine credentials, and report the names of those duly accredited.

2d. The Executive Committee shall report the names of new members and of persons present recommended for membership, who shall be immediately balloted for.

3d. The roll of those in attendance, as thus completed, shall be called by the Permanent Secretary.

4th. The report of the Standing and Special Committees shall be read by their titles, or in full, and laid on the table for future consideration.

5th. A committee to nominate officers for the ensuing year shall be appointed, consisting of one nominated by each delegation in attendance, and three members appointed by the President from among those not delegated, to report at the opening of the next session.

The first session shall close with the reading of the President's Annual Report, and referring any portion requiring the action of Committees.

After the first session, the order of business shall be determined by the nature of the subjects presented and by the consent of the majority.

Section 3. During periods fixed by vote for scientific discussion and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but at other times shall be enforced by the presiding officer, from whose decisions, however, appeals may be taken if required by five members, and the meeting shall thereupon decide without debate.

A motion reduced to writing and seconded shall be open to discussion, and while it is before the meeting no motion shall be received unless to amend, divide, commit, to lay on the table, postpone or to adjourn; and a motion to adjourn shall be decided without debate.

On the call of any member, the yeas and nays shall be ordered, when every member shall vote unless excused by a majority of those present, and the names and manner of voting shall be entered on the Minutes.

ARTICLE VI.

This Constitution may be altered or amended by a vote of three-fourths of the members present at any regular meeting, and notice to alter or amend the same shall be given at least one sitting before a vote thereupon.

Approving of the objects of the American Pharmaceutical Association, I am desirous of joining it in membership; and having read its Constitution, I hereby signify my approval of it, and subscribe to it.

.....

Address .....

I hereby agree to return my certificate of membership in the American Pharmaceutical Association to the Treasurer of that body, if I shall hereafter cease to be connected in membership with it.

.....

TESTIMONIALS.

The undersigned being personally acquainted with
of testify to his moral character, his skill as a practical Druggist and Pharmaceutist, and his professional probity and good standing, and they recommend him for membership in the American Pharmaceutical Association.

NAME ADDRESS.

ROLL OF MEMBERS.

HONORARY MEMBERS.

UNITED STATES OF AMERICA.

Montgomery J. Bailey, M. D.,	New York,	New York,	1856.
Elias Durand,	Philadelphia,	Penna.,	1857.
Daniel B. Smith,	"	"	1856.
George B. Wood, M. D.,	"	"	1857.

FOREIGN COUNTRIES.

BELGIUM.

A. T. De Meyer, *Brussels*, 1868. Norbert Gille, *Brussels*, 1868.

ENGLAND.

Henry Deane, *London*, 1868. Daniel Hanbury, *London*, 1868.

FRANCE.

M. Boullay, *Paris*, 1868. M. Robinet, *Paris*, 1868.

GERMANY.

Dr. Hermann Hager, *Berlin*, 1868. Dr. Frederick Mohr, *Bonn*, 1868.
Dr. G. C. Wittstein, *Munich*, 1868.

RUSSIA.

Dr. Arthur Casselmann, *St. Petersburg*, 1868. Dr. G. Dragendorff, *Dorpat*, 1868.

SWITZERLAND.

Dr. F. A. Flückiger, *Berne*, 1868.

ACTIVE MEMBERS.

UNITED STATES OF AMERICA.

ALABAMA.

Greensboro'.

Stawell W. Gillespie..... 1866

Mobile.

P. C. Candidus..... 1857
Manuel Primo..... 1868

CALIFORNIA.

San Francisco.

George S. Dickey..... 1859
George E. Hinckley..... 1859
William H. Keith..... 1859
Henry Steele..... 1859
James G. Steele..... 1859

Marysville.

Charles P. Pollard..... 1859

Petaluma.

Frederick T. Maynard..... 1864

COLORADO.

Central City.

John Best..... 1866
Benjamin E. Hays..... 1866

COLUMBIA, DISTRICT OF

Washington.

James N. Callan..... 1857
Francis X. Dooley..... 1863
Robert B. Ferguson..... 1867
Francis Gaither..... 1860
Valentine Harbaugh..... 1856
Daniel P. Hickling..... 1867
J. Stanley Jones..... 1867
John L. Kidwell..... 1856
Kline C. Lineaweaver..... 1864
John A. Milburn..... 1858
Talbot C. Murray..... 1863
Joseph W. Nairn..... 1858
Giles G. C. Simms..... 1860
Samuel R. Sylvester..... 1858
Samuel F. Tyson..... 1857
Francis S. Walsh..... 1856

CONNECTICUT.

New Haven.

Alfred Daggett, Jr..... 1865

Rockville.

Nathan F. Peck..... 1861

Waterbury.

Nathan Dikeman..... 1865

Woonsocket.

Frederick A. Weber..... 1860

DELAWARE.

Wilmington.

Ferris Bringhurst..... 1862
John M. Cunningham..... 1867
John Dixon..... 1867
Edward McInall, Jr..... 1867
Benjamin Shoemaker..... 1867
Charles Shoemaker..... 1867
John H. Simms, M. D..... 1867

New Castle.

Charles E. Ferris, M. D..... 1867

GEORGIA.

Augusta.

Robert H. Land..... 1859

Macon.

J. Henry Zeilin..... 1859

Milledgeville.

John M. Clark..... 1857
Fleming C. Grieve..... 1859

ILLINOIS.

Chicago.

Henry Biroth..... 1865
James V. Z. Blaney, M. D..... 1865
Sylvester S. Bliss..... 1865
William F. Blocki..... 1863
Julius C. Borcherdt..... 1867
Thomas Brown..... 1865
Alexander B. Bryan..... 1865
Frederick A. Bryan..... 1865
George Buck..... 1860
Nicolous T. Curth..... 1865
Henry G. D'Evers..... 1865
Emil Dietzsch..... 1865
Albert E. Ebert..... 1864
John W. Ehrman..... 1867
Henry W. Fuller..... 1865
Edwin O. Gale..... 1857
William H. Gale..... 1857
George M. Hambright..... 1865
Charles Heylman..... 1865
John H. Hooper..... 1865
W. Austin Joyce..... 1867
Ira Lackey..... 1866
Frederick Mahla, Ph. D..... 1864
George McPherson..... 1865
Nehemiah Mead..... 1865
James W. Mill..... 1864
Philip L. Milleman..... 1866
William H Muller..... 1865
James D. Paine..... 1857
John Parsons..... 1865
William Reinhold..... 1866
Ezekiel H. Sargent..... 1864
Nobel Schroeder..... 1866
J. Paine Sharp..... 1865

Louis C. Strehl..... 1866
Henry Sweet..... 1865
Emil P. Tourtelot..... 1866
Frank J. Tourtelot..... 1866
Thomas Whitfield..... 1865
Joseph Willard 1865
Louis Woltersdorf..... 1865

Bloomington.

Dunbar S. Dyson..... 1856

Freeport.

John Burrell..... 1865

Galesburg.

Albert B. Clark, Jr..... 1868

Peoria.

Marvin A. Breed..... 1866

Rock Island.

H. M. Pettit..... 1860

INDIANA.

Auburn.

John H. Ehlers..... 1867

Fort Wayne.

H. Van Sweringen..... 1865

Indianapolis.

Edward T. Miller..... 1859
George W. Sloan..... 1857

Jeffersonville.

Frederick Weiss..... 1867

Lafayette.

Uriah F. Shalter..... 1864

La Porte.

Frederick Nest..... 1866

Logansport.

George W. Brown..... 1865

New Albany.

Benjamin F. Scribner..... 1858

Richmond.

A. Samson..... 1864

Terre Haute.

George W. Austin..... 1865
Thomas H. Barr..... 1853
James Gallagher..... 1865

Vincennes.

Jerome B. Jardella..... 1865
William J. Luck..... 1859

IOWA.

Keokuk.

N. Gray Bartlett..... 1864

KANSAS.

Junction City.

Edward T. Porter..... 1867

Leavenworth.

Robert J. Brown..... 1862
Robert Parham..... 1868

KENTUCKY.

Louisville.

George H. Carey..... 1866
John Colgan..... 1867
C. Lewis Diehl..... 1863
Norman Fletcher..... 1867
Henry A. Hughes 1857
George E. Jeannot..... 1864
Thomas E. Jenkins, M. D..... 1866
Charles K. Jones..... 1867
Flora Kern, Jr..... 1868
John M. Krim..... 1867
J. Frederick Llewellyn..... 1867
George A. Newman..... 1866
Ferdinand J. Pfingst..... 1867
Edward A. Preuss..... 1866
Charles J. Rademaker..... 1867
Francis Sacksteder..... 1867
Graham Wilder..... 1868
Gustavus A. Zausinger..... 1867

Covington.

John C. Parr..... 1856

LOUISIANA.

New Orleans.

Frederick A. Keffer..... 1862
William P. Keffer..... 1866
John H. Pope..... 1860

New Iberia.

James A. Lee..... 1856

MAINE.

Portland.

William Atwood..... 1859
Sargent P. Coe..... 1859
Francis E. Covell..... 1865
Henry T. Cummings, M. D. 1853
Edmund Dana, Jr..... 1859
Henry H. Hay..... 1867
Walter F. Phillips..... 1859

Augusta.

Charles K. Partridge..... 1867

Bangor.

Noah S. Harlow..... 1859

Eastport.

Edward E. Shead 1866

Lewistown.

John G. Cook..... 1859

MARYLAND.

Baltimore.

George W. Andrews..... 1856
J. Brown Baxley..... 1856
John S. Benzinger 1860
John Block 1860
Alexander E. Brown 1863
William H. Brown..... 1863
Charles Caspari 1856
William Caspari..... 1856
George F. Dannattel..... 1867
Charles E. Dohme..... 1863
Lewis Dohme..... 1859
Matthew W. Donavin..... 1867
Henry A. Elliott..... 1859
William Elliott..... 1868
Columbus V. Emich..... 1863
John F. Hancock..... 1863
John H. B. Jefferson..... 1868
N. Hynson Jennings..... 1857
Thos. E. Kirby, M. D.,..... 1863
Charles A. Lampanius..... 1867
Michael J. Lauer..... 1865
James C. Leamy..... 1867
Alonzo Lilly, Jr..... 1863
James E. McDaniel 1860
Oscar Monsarrat..... 1856
J. Faris Moore..... 1856
S. Ellwood Morrison..... 1863
John P. Muth..... 1864
John G. Nagle..... 1863
Joseph C. O'Brien..... 1863
Elisha H. Perkins..... 1857
W. E. Reifsnider..... 1864
Joseph Roberts..... 1856
Eugene J. Russell..... 1856
E. Walton Russell..... 1863
Alpheus P. Sharp..... 1855
Joseph Y. Skinner..... 1864
J. Jacob Smith..... 1856
Charles L. Tilyard..... 1867
William S. Thompson..... 1856
John J. Thomsen..... 1856
John H. Winkleman..... 1864
Joseph A. Wolf..... 1860
Joseph Muse Worthington..... 1868

Centreville.

Daniel B. Street..... 1867

Hagerstown.

William W. Cunningham..... 1863
Jonas Winter..... 1863

MASSACHUSETTS.

Boston.

William D. Atkinson, Jr..... 1865
Charles H. Atwood.. 1856
James F. Babcock..... 1865
Leopold Babo..... 1859
Charles Fred. Bartlett..... 1865
Charles H. Bassett..... 1867
Ashel Boyden..... 1853
Joseph T. Brown 1859
William Brown..... 1858
Joseph Burnett..... 1852
John Butterworth. 1860
Isaac T. Campbell..... 1859
Henry Canning..... 1865
Solomon Carter..... 1865
George H. Chapman 1859
Judson R. Cheney..... 1868
Frank B. Clock..... 1865
Moses D. Colby..... 1859
Samuel M. Colcord. 1852
James B. Colton 1865
Thomas J. Connor..... 1867

E. Waldo Cutler..... 1859
Alfred C. Dana 1859
Thomas Doliber..... 1859
Erastus H. Doolittle..... 1865
Gustavus D. Dows..... 1865
J. Howes Dyer..... 1865
Charles I. Eaton..... 1867
George W. French..... 1865
Henry D. Fowle..... 1853
James A. Gleeson..... 1859
Michael H. Gleeson..... 1859
William W. Goodwin..... 1853
Charles B. R. Hazeltine..... 1867
Daniel Henchman..... 1853
Pratt R. Hoagland..... 1868
Thomas Hollis..... 1853
Luther L. Jenkins..... 1867
William E. Jenkins..... 1865
Robert R. Kent..... 1855
Darius B. Kidder..... 1858
Henry W. Lincoln..... 1853
Alvah Littlefield..... 1856
Chauncy B. Littlefield..... 1868
C. H. Lyon, Jr..... 1858
George F. H. Markoe..... 1863
James S. Melvin..... 1853
Theodore Metcalf..... 1857
Thomas S. Moffitt..... 1861
James R. Nichols..... 1865
William F. Nowell..... 1867
Joseph L. Parker..... 1864
I. Bartlett Patten..... 1858
Edward H. Perry..... 1865
Thomas Restieaux..... 1853
George D. Ricker..... 1858
Charles F. Rogers..... 1860
Samuel A. D. Sheppard..... 1865
Francis W. Simmons..... 1865
Elijah Smalley..... 1860
Orlando Tompkins..... 1859
Levi Tower, Jr..... 1860
William B. Tower..... 1867
T. Larkin Turner..... 1853
Charles G. Underwood..... 1865
Henry Warren..... 1859
Eugene Whittemore..... 1865
Abraham S. Wiley..... 1857

Benjamin O. Wilson..... 1859
Daniel G. Wilkins..... 1865
George W. Woodbridge..... 1859
Samuel H. Woods..... 1859

Brighton.

William Warren..... 1867

Brookline.

George W. Bird..... 1867

Cambridge.

John H. Hubbard..... 1866
A. H. Ramsey..... 1859

Cambridge, East.

Oliver H. Webber..... 1858

Cambridgeport.

Augustus R. Bayley..... 1859
Henry Thayer..... 1858
Joel S. Orne..... 1859
James H. Richardson..... 1868

Charlestown.

Ezra W. Arnold..... 1868
Levi G. Dodge..... 1859
George P. Kettell..... 1867
Augustus P. Melzar..... 1856
Benjamin F. Stacey..... 1860
George A. Stuart, M. D..... 1867

Chelsea.

John Buck..... 1855
George W. Churchill..... 1865

Dedham.

George Marsh..... 1865

Dorchester.

Jeremiah Sanborn, Jr..... 1865

Feltonville.

William Aug. Safford..... 1865

Great Barrington.

Frederick T. Whiting..... 1863

Hingham.

James L. Hunt..... 1865

Ipswich.

Andrew Geyer..... 1865

Lawrence.

Henry M. Whitney..... 1859

Lowell.

David Coggin..... 1864
Samuel Kidder, Jr..... 1859

Lynn.

Benjamin Proctor..... 1859

New Bedford.
James E. Blake..... 1865

Newton Corner.
Charles H. Lowe..... 1865

North Adams.
Newton C. Pettis..... 1868

North Andover.
George W. Berrian, Jr..... 1857

North Bridgewater.
Charles C. Bixby..... 1859

Rockport.
Eben Blatchford..... 1857
Eben Blatchrord, Jr..... 1865

Roxbury.
Charles E. Savell..... 1860

Salem.
James Emerton..... 1859

Springfield.
Edmund Bigelow..... 1860
John E. Doyle..... 1866
John Hooker..... 1867

Worcester.
James Evesson Bright..... 1868
Michael S. McConville..... 1859
Thomas A. McConville..... 1864
David Scott..... 1855
Nelson R. Scott..... 1859

MICHIGAN.

Detroit.
Samuel P. Duffield, Ph. D..... 1859
Jacob S. Farrand..... 1866
Francis E. Fletcher..... 1866
John H. Griffith..... 1866
Thomas H. Griffith..... 1866
Henry E. Hill..... 1866
William Johnston..... 1860
Francis Lawrence..... 1866
Charles L'Hommedieu..... 1866
Theodore Ronnefeld..... 1866
Thomas R. Spence..... 1857
Frederick Stearns..... 1855
Samuel S. Stearns..... 1866
James Vernon..... 1866
George M. Wheeler..... 1860

Almont.
Daniel M. Richardson..... 1866

Ann Arbor.
Emanuel Mann..... 1866
Eugene J. Weeks..... 1866

Battle Creek.
Robert C. Wardell..... 1860

East Saginaw.
Alfred A. Dunk..... 1867
Samuel S. Garrigues, Ph. D..... 1855

Jackson.
James M. Holland..... 1866
James C. Meseroll..... 1867

Marine City.
James W. Backus..... 1867

Monroe.
Charles F. Uhl..... 1866
Julius Weiss..... 1866

Parma.
George P. Glazier..... 1863
Alson Landon..... 1866

Saginaw City.
Richard Vogel..... 1867

Ypsilanti.
Josiah B. Frost..... 1866

MINNESOTA.

Minneapolis.
William H. Shuey..... 1864

St. Paul.
Robert Ormsby Sweeney..... 1866

MISSISSIPPI.

Columbus.
Crawford Blackfoot..... 1857

Jackson.
Matthew F. Ash..... 1856
John T. Buck..... 1868

Yazoo City.
Charles C. Thornton, M. D..... 1862

MISSOURI.

St. Louis.
Guilford T. Chamberlain..... 1853
William H. Crawford..... 1864

Samuel D. Hendel. 1858
Isaac E. Jones..... 1858
Theodore Kalb 1864
Arthur Leitch..... 1860
Eugene L. Massot..... 1857
James McBride..... 1864
Christian F. G. Meyer..... 1860
James O'Gallagher..... 1858
Evermont Randals..... 1865
Enno Sander, Ph. D..... 1858
Henry W. Scheffer..... 1863
Ferdinand W. Sennewald..... 1865
Thomas Tanton. 1865

Carondelet.

Hubert Primm..... 1855

Kansas City.

Augustus Breunert..... 1868
Charles O. Rano..... 1866

St. Joseph.

Andreas Valdemar Bugge..... 1868

NEVADA.

Aurora.

Alexander A. Green..... 1868

Virginia City.

David L. Smith..... 1868

NEW HAMPSHIRE.

Concord.

James Morgan..... 1859
John F. Rollins..... 1859

Dover.

Charles A. Tufts..... 1856

Exeter.

Charles A. Merrill..... 1858

Great Falls.

George Moore 1859

Keene.

O. Gilman Dort..... 1858

Lebanon.

George S. Kendrick..... 1858

New Market.

George L. Dearborn..... 1853

Portsmouth.

Joseph H. Thacher..... 1859

NEW JERSEY.

Jersey City.

Maxwell Abernethy..... 1865
James M. Harner..... 1867
Adolph Kirsten..... 1867
William R. Laird 1867
William W. McKechnie..... 1868
James R. Mercein..... 1865
William R. Schank..... 1867
George H. White..... 1868

Bordentown.

Bunting Hankins..... 1865
James Stratton..... 1859

Burlington.

William J. Allinson..... 1862
Henry B. Morris 1864
John A. Vandegrift..... 1867

Elizabethport.

Richard Frohwein..... 1867

Gloucester.

Edwin Tomlinson..... 1865

Hoboken.

George Foss..... 1868

Madison.

William Fletcher Muchmore..... 1868

Morristown.

Charles H. Dalrymple..... 1860
William S. Voorhees..... 1868

Mount Holly.

Peter V. Coppuck..... 1857
Aaron S. White..... 1860

Newark.

Alexander C. Peters..... 1868
Theodore Schumann..... 1860
Charles B. Smith..... 1868

Plainfield.

William H. Voorhees 1868

Vincentown.

Jacob Heisler..... 1868

NEW MEXICO.

Santa Fé.

acob Krummeck..... 1867

NEW YORK.

New York City.

James S. Aspinwall..... 1855
P. Wendover Bedford..... 1859
Paul Balluff..... 1860
Alexander V. Blake..... 1860
William A. Brewer..... 1853
John Canavan..... 1855
John Carle, Jr..... 1860
Henry A. Cassebeer..... 1858
Charles F. Chandler, Ph. D..... 1867
Isaac Coddington..... 1855
George D. Coggeshall..... 1852
Ferris W. Colby..... 1865
Thomas J. Covell..... 1864
John H. Currie..... 1858
George F. Dege..... 1868
Andrew J. Ditman..... 1868
George W. De la Vergne..... 1857
Adolph G. Dunn..... 1862
John Faber..... 1857
William Fisher..... 1862
Michael Flynn..... 1866
John Frey..... 1865
Edmond C. Fougera..... 1867
Max Frohwein..... 1865
Theobald Frohwein..... 1862
Arthur W. Gabaudan..... 1862
Warren B. Gardiner..... 1860
John W. Gilmore..... 1867
William A. Gellatly..... 1858
William M. Giles..... 1860
Augustus Goecke..... 1867
Bernard Goodman..... 1867
Raymond Graverend..... 1859
Thomas T. Green..... 1858
Junius Gridley..... 1853
Charles B. Guthrie, M. D..... 1852
Frederick Hale..... 1855
Spencer O. Hatfield..... 1864
David Hays..... 1867
Henry Haviland..... 1857
Jabez H. Hazard..... 1860
William Hegeman..... 1858
Gottfried Hebberling..... 1867
James S. Higgins..... 1862
Frederick Hoffmann, Ph. D..... 1867
Charles F. L. Hohenthal..... 1865
Eugene Alexander Houston..... 1864
Alexander Hudnut..... 1857
Edward L. Johnson..... 1860
Henry Kiersted..... 1858
Henry T. Kiersted..... 1856
Henry Kimmel..... 1867
Charles W. Kitchen..... 1865
Gustavus Krehbiel..... 1865
Lewis T. Lazell..... 1858
Louis Leroy..... 1859
Edward H. Marsh..... 1858
Alfred Mason..... 1865
Ferdinand F. Mayer..... 1859
George J. McKay..... 1864
John McKesson, Jr..... 1867
Edward L. Milhau..... 1858
John Milhau..... 1855
Ernest Molwitz..... 1867
James F. Morgan..... 1865
William Neergaard..... 1859
William H. C. Onderdonk..... 1867
Charles A. Osmun..... 1868
George G. Porter..... 1860
Gustavus Ramsperger..... 1860
Bernard H. Reinold..... 1861
Daniel C. Robbins..... 1862
Lucian M. Rice..... 1866
Robert A. Sands..... 1858
George G. Sands..... 1867
James L. Schofield..... 1867
John W. Shedden..... 1859
George E. Sheils..... 1860
James T. Skelley..... 1866
George W. Southwick..... 1860
James Weaver..... 1860
Lucian F. Wheeler..... 1858
Joseph H. Westerfield..... 1858
William H. Whitney..... 1867
William Wright, Jr..... 1859

Brooklyn.

Francis M. Bassett..... 1860
W. E. P. Baylis..... 1860
Theodore F. Burt..... 1868
George C. Close..... 1858
J. F. Conway..... 1862

C. Grenville Curtiss..... 1866
Robert J. Davies..... 1858
John A. Dunn..... 1867
Eugene Dupuy..... 1852
John I. Fellows..... 1865
Emil Heydenreich..... 1867
Victor Heidenreich..... 1860
Thomas Jones..... 1868
Thomas Lewis..... 1867
Gilbert Long..... 1864
Tristram W. Metcalf..... 1857
Francis C. Musgiller..... 1867
George A. Newman..... 1865
John H. Niebrugge..... 1861
James H. Ollif..... 1867
Richard J. Owens..... 1860
Herschel Parker..... 1867
George S. Peduzzi..... 1861
Cyrus Pyle..... 1859
Joseph P. Remington..... 1867
Robert R. Rhodes..... 1865
Ambrose C. Snyder..... 1867
Edward R. Squibb, M. D..... 1858
Charles N. Stirling..... 1867
Alfred J. Tartiss..... 1867
William J. Watson..... 1860
Joshua G. Wilbur..... 1860
William Wynn..... 1867

Albany.

Robert S. McMurdy, M. D..... 1861

Buffalo.

William H. Peabody..... 1857

Elmira.

Henry C. Moore..... 1868

Fishkill Landing.

Sylvester M. Earle..... 1864
Aug. Theodore Moith..... 1860

Flushing.

James L. Contant..... 1868

Greenpoint.

Theodore Tapken..... 1868

Middletown.

James T. King..... 1859

Newburgh.

Thomas V. Crandall, M. D..... 1866
John E. Peck..... 1866

New Lebanon.

Henry A. Tilden..... 1858

New Rochelle.

Samuel G. Welling..... 1860

North Shore, L. I.

William H. McRae..... 1861

Potsdam.

Hervey D. Thatcher..... 1865

Rochester.

Hippolytus A. Blauw..... 1856
George Breck..... 1866
Alfred S. Lane..... 1857

Sag Harbor.

J. F. Daniel Lobstein..... 1868

Saratoga Springs.

Erastus N. Champlin..... 1864
Charles F. Fish..... 1866

Syracuse.

John T. Hanning..... 1864

West Farms.

Henry E. Webb..... 1865

Yonkers.

William G. Stephens..... 1860
Robert J. Toplis..... 1863

NORTH CAROLINA.

Chapel Hill.

Richard B. Saunders..... 1858

Newbern.

Henry J. Menninger..... 1866

Washington.

Charles K. Gallagher..... 1857

OHIO.

Cincinnati.

William H. Adderly..... 1854
William C. Arons..... 1854
Edward Berghausen..... 1864
Charles H. Bode..... 1864
William B. Chapman..... 1852
Frederick A. Crowther..... 1864
George Eger..... 1864
Adolphus Fennel..... 1864
Augustus W. Foertmyer..... 1864
Charles Foertmyer..... 1864

Alfred V. Forgey 1865
John G. Fratz 1864
Henry Fritsch 1864
Oliver F. Gordon 1857
William J. M. Gordon 1854
Thomas L. A. Greve 1864
Otto Heineman 1864
Charles M. Helman 1864
Augustus Henkel 1865
Alfred C. Hill 1864
H. H. Hill 1864
Augustus Hottendorf 1864
Alexander M. Johnson 1864
J. F. Judge 1866
William Karrmann 1864
John Keeshan 1864
James Markward 1864
George B. McPherson 1867
William S. Merrell 1854
Harlow M. Merrill 1864
F. M. Odena 1866
Michael Parr 1864
Griffith Rees 1864
Paul Reinlein 1856
Hermann F. Reum 1864
Daniel Roemer 1865
Augustus Salpius 1864
John Scott 1854
William Tilley 1864
Andrew J. Tully 1862
A. Wagner 1864
Edward S. Wayne 1854
Jacob D. Wells 1864
Matthew M. Yorston 1864

Alliance.

Peter H. Barr 1867

Canton.

Conrad J. Geiger 1866
Walter P. Geiger 1867

Circleville.

George H. Fickardt 1864

Cleveland.

William Fiske 1857
E. W. Sackrider 1859

Dayton.

John S. Crawford 1868
John W. Dietrich 1856

Dresden.

Thomas B. Dorsey 1866

Fulton.

Joseph H. Debolt 1864

Navarre.

Alexander Garver 1866
John F. Grossklaus 1859

Piqua.

Robert S. Drake 1867

Toledo.

Thomas Daniels 1866

Wilmington.

William S. Fuller 1866

Youngstown.

Leander Neal 1858

OREGON.

Portland.

Charles Hodge 1859

PENNSYLVANIA.

Philadelphia.

Walter B. Abell 1867
John R. Angney 1867
Henry C. Archibald 1867
George H. Ashton 1864
William C. Bakes 1864
Louis G. Bauer 1867
James L. Bispham 1865
Andrew Blair 1865
George Blinkhorn 1860
Edwin McC. Boring 1867
Henry Bower 1860
Henry A. Bower 1868
Charles Bullock 1857
Samuel Campbell 1864
Thos. J. Casper, M. D 1867
Samuel Chapman, M. D 1857
Thomas R. Coombe 1860
Henry Cramer 1867
Benjamin J. Crew 1860
J. Lewis Crew 1860
Edward T. Dobbins 1867
Charles L. Eberle 1865
Charles H. Eggert 1857
George W. Eldridge 1865

Charles Ellis..... 1852
Evan T. Ellis..... 1857
William Ellis..... 1864
Robert England..... 1868
John S. Erben..... 1868
William Evans, Jr..... 1860
Augustus Everhart..... 1867
John C. Everson..... 1863
Israel J. Grahame..... 1856
Charles F. Gristock..... 1864
John E. Grove..... 1868
Charles Eugene Haenchen..... 1865
Edward H. Hance..... 1857
Charles W. Hancock..... 1868
Peter J. Hassard..... 1853
Joseph A. Heintzelman..... 1858
Orange S. Hubbell..... 1857
John C. Hurst..... 1868
Thomas P. James..... 1857
William J. Jenks..... 1858
Benjamin F. Johnson..... 1859
Daniel S. Jones..... 1859
Edward C. Jones..... 1864
Samuel T. Jones..... 1867
Caleb R. Keeney..... 1868
Roger Keys..... 1868
Thos. A. Lancaster..... 1859
Asher S. Leidy..... 1857
Henry B. Lippincott..... 1868
John C. Long..... 1863
John M. Maisch..... 1856
S. Mason McCollin..... 1864
William McIntyre..... 1868
Alfred Mellor..... 1864
Adolph W. Miller..... 1868
Decatur Milligan..... 1867
Joachim B. Moore..... 1860
Caleb H. Needles..... 1868
Adolphus F. W. Neynaber..... 1859
Robert B. Parkinson..... 1865
Clemmons Parrish..... 1868
Dillwyn Parrish..... 1857
Edward Parrish..... 1852
Henry T. Peck..... 1868
George G. Percival..... 1868
E. Raphael Perot..... 1858
T. Morris Perot..... 1857
Wilson H. Pile, M. D..... 1857
Robert Platzer..... 1865
William Procter, Jr..... 1852
Henry N. Rittenhouse..... 1857
Alonzo Robbins..... 1865
Edward M. Roche..... 1868
William F. Roche..... 1868
George J. Scattergood..... 1860
Roland Seeger..... 1868
Charles Shivers..... 1860
James T. Shinn..... 1860
George Y. Shoemaker..... 1862
Joseph L. Shoemaker..... 1867
Robert M. Shoemaker, Jr..... 1865
Allen Shryock..... 1868
J. Henry C. Simes..... 1865
Ambrose Smith..... 1857
Isaac W. Smith..... 1867
George M. Snowden..... 1857
Alfred B. Taylor..... 1852
William Taylor..... 1868
William B. Thompson..... 1858
Frederick A. Tilge..... 1868
Samuel F. Troth..... 1857
William E. Van Orsdel..... 1868
Hermann A. Vogelbach..... 1868
William R. Warner..... 1857
J. Thornton Weaver..... 1868
William H. Webb, M. D..... 1867
Charles A. Weidemann..... 1868
Thomas S. Wiegand..... 1857
Clayton N. Wills..... 1864
Adam H. Wilson..... 1859
Archibald W. Wright..... 1868

Ashland.

Frederick J. Delker..... 1868

Bellefonte.

Francis P. Green..... 1864

Bethlehem.

James T. Borhek, Jr..... 1867
Edward T. Meyers..... 1867
M. M. Selfridge..... 1858

Chambersburg.

Charles H. Cressler..... 1868
William Heyser, Jr..... 1856

Columbia.

James A. Meyers..... 1867

Danville.

Washington Laycock..... 1857
John W. Von Nieda..... 1868

Harrisburg.

Charles A. Bannvart..... 1856

Lancaster.

Charles A. Heinitsh..... 1857

Lebanon.

Joseph L. Lemberger..... 1858

Pittsburg.

Joseph Abel..... 1864
James B. Cherry..... 1868
John C. Mattern..... 1860
M. C. Morgan..... 1867
Samuel K. Norgrave..... 1857
Alfred J. Rankin..... 1864

Reading.

John Heyl Raser..... 1867
Philip M. Ziegler..... 1867

South Bethlehem.

William S. Sieger..... 1867

Wilkesbarre.

Richard Tener, Jr..... 1863

Williamsport.

William F. Logan..... 1866

RHODE ISLAND.

East Greenwich.

Albert J. Congdon..... 1860

Newport.

William S. N. Allen..... 1865
Lyman R. Blackman..... 1865
Robert J. Taylor..... 1859

Providence.

Albert L. Calder..... 1859

Westerly.

Robert F. Lattimer..... 1857

SOUTH CAROLINA.

Columbia.

Edward H. Heinitsh..... 1867
Lewis T. Silliman..... 1859

TENNESSEE.

Memphis.

Leonce Cherot..... 1865
Charles P. Johnston..... 1868
Henry C. Steever..... 1865

Knoxville.

Aurick S. Brackett..... 1868
J. Marshall Caldwell..... 1866
Joseph H. Larwill, Jr..... 1858

VERMONT.

St. Johnsbury.

John C. Bingham..... 1853

VIRGINIA.

Alexandria.

Richard H. Stabler, M. D..... 1856

Fredericksburg.

James Cooke..... 1856

WASHINGTON TERRITORY.

Walla Walla.

Frederick W. Colman..... 1865

WISCONSIN.

Beloit.

Charles F. G. Collins..... 1859

Milwaukie.

John R. Drake..... 1860

DOMINION OF CANADA.

QUEBEC.

Montreal.

J. Eugene D'Avignon..... 1866
Henry R. Gray..... 1867
Nathan Mercer..... 1867

ONTARIO.

Guelph.

Alexander Bain Petrie..... 1867

Hamilton.

Thomas Lawrence..... 1867

London.

William Maurice Moore..... 1866
William Saunders..... 1860

St. Thomas.

George W. Morgan, Jr..... 1867

Stratford.

George J. Waugh..... 1862

WEST INDIES.

BERMUDA.

Hamilton.

James B. Heyl..... 1863

U. S. OF COLOMBIA.

Panama.

Florence C. Herbruger..... 1867

LIST OF DECEASED MEMBERS.

HONORARY MEMBERS.

		Elected.	Died.
Franklin Bache, M. D.,	Philadelphia, Pa.,	1857,	1864
Thomas Farrington,	Boston, Mass.,	1856,	1867

ACTIVE MEMBERS.

		Elected.	Died.
James H. Anderson,	New York, N. Y.,	1859,	1866
Charles L. Bache,	San Francisco, Cal.,	1852,	1854
James Balmer,	Baltimore, Md.,	1856,	1866
John W. Barry,	Baltimore, Md.,	1856,	1861
John Beyron,	Shrevesport, La.,	1858,	1862
Francis O. Bigelow,	Medford, Mass.,	1859,	1863
Samuel J. Billings,	New York, N. Y.,	1860,	1865
Henry C. Blair,	Philadelphia, Pa.,	1855,	1862
John T. Brown,	Boston, Mass.,	1859,	1860
Benjamin Canavan,	New York, N. Y.,	1855,	1857
Charles T. Carney,	Boston, Mass.,	1853,	1862
W. F. Clency,	Cincinnati, O.,	1859,	1865
Walter S. Coon,	New York, N. Y.,	1858,	1861
N. Cressman,	Waterloo, Canada West,	1863,	1864
James E. Cunningham,	Pittsburg, Pa.,	1860,	1863
Alexander Cushman,	New York, N. Y ,	1858,	1861
John P. Dodge,	New York, N. Y.,	1855,	1863
Ray B. Easterbrook,	New York, N. Y.,	1858,	1868
Louis M. Emanuel, M. D.,	Linwood, Pa.,	1857,	1868
George B. Fish,	Saratoga Springs, N. Y.,	1860,	1866
Henry F. Fish,	New York, N. Y.,	1852,	1868
Richard Forester,	Brooklyn, N. Y.,	1860,	1862
William Gay,	Cambridgeport, Mass.,	1858,	1862
John C. Gerhard,	Cincinnati, O.,	1862,	1866
Andrew Geyer,	Boston, Mass.,	1853,	1855
Louis Groueweg,	Cincinnati, O.,	1864,	1866
J. A. Hageman,	New York, N. Y.,	1855,	1860

		Elected.	Died.
F. L. John,	Philadelphia, Pa.,	1856,	1864
Charles A. Junghanns,	Cincinnati, O.,	1858,	1862
Robert C. Kennedy,	Cleveland, O.,	1865,	1868
Asbury Kent,	Cincinnati, O.,	1854,	1860
William Kent,	Cincinnati, O.,	1864,	1867
Henry King,	New York, N. Y.,	1858,	1867
E. E. Knapp,	Norwalk, Conn.,	1860,	1862
Joseph Laidley,	Richmond, Va.,	1852,	1861
James B. Lane,	Fitchburg, Mass.,	1856,	1867
Alexander Leitch,	St. Louis, Mo.,	1858,	1868
William B. Little,	Panama, U. S. Colombia,	1857,	1867
Wm. Longshaw, Jr., M. D.,	Bayou Sara, La.,	1858,	1864
John McDonald,	Brooklyn, N. Y.,	1860,	1861
T. C. McIntyre, M. D.,	Washington, D. C.,	1858,	1862
James T. Maxwell,	New York, N. Y.,	1855,	1860
John Meakim (Pres. 1855–56),	New York, N. Y.,	1852,	1863
James W. Nadand,	Cincinnati, O.,	1864,	1868
William J. Olliffe, M. D.,	New York, N. Y.,	1858,	1866
Samuel W. Osgood,	Davenport, Iowa,	1858,	1860
Albert G. Palmer,	Washington, D, C.,	1858,	1860
S. P. Peck,	Bennington, Vt.,	1853,	1859
Samuel R. Philbrick,	Boston, Mass.,	1852,	1859
L. Phillips,	Baltimore, Md.,	1856,	1865
James L. Polhemus,	Sacramento, Cal.,	1866,	1867
J. Lindley Pyle,	Brooklyn, N. Y.,	1859,	1866
Lewis Rehfuss,	Cincinnati, O.,	1854,	1856
David Roberts,	Boston, Mass.,	1858,	1863
Frederick Rollman,	Philadelphia, Pa.,	1862,	1864
Jesse M. Sands,	New York, N. Y.,	1860,	1867
Harmar D. Scully,	Pittsburg, Pa.,	1858,	1866
C. Augustus Smith,	Cincinnati, O.,	1852,	1862
Edwin R. Smith,	Monmouth, Ill.	1862,	1869
William H. Squire,	Germantown, Pa.,	1862,	1865
Henry Steiner,	Philadelphia, Pa.,	1857,	1858
A. M. Stevens,	Cincinnati, O.,	1854,	1860
Rufus W. Stevens,	Great Falls, N. H.,	1859,	1868
Thomas A. Sweetser,	South Danvers, Mass.,	1859,	1860
William Thomas,	Jersey City, N. J.,	1855,	1856
S. B. Waite,	Washington, D. C.,	1858,	1862
G. W. Weyman, Ph. D.,	Pittsburg, Pa.,	1858,	1864
Daniel F. White,	Charlestown, Mass.,	1859,	1864
W. P. White,	Chicago, Ill.,	1865,	1866
Silas Whitehead,	Lynchburg, Va.,	1856,	1858
G. C. Wilson,	Boston, Mass.,	1859,	1861
C. Wiseman,	Baltimore, Md.,	1856,	1862
L. Witzell,	Cincinnati, O.,	1864,	1867
G. Davidge Wood,	Baltimore, Md.,	1856,	1863

LIST OF RESIGNATIONS.

H. S. Biddle,	Detroit,	Michigan,	1866
Samuel S. Bunting,	Philadelphia,	Pennsylvania,	1857
John R. Colby,	Boston,	Massachusetts,	1865
Emil Preier,	Chicago,	Illinois,	1865
Charles M. Duren,	St. Albans,	Vermont,	1865
James Gordon,	Boston,	Massachusetts,	1859
Theodore S. Harris,	Boston,	Massachusetts,	1859
Samuel N. James,	Philadelphia,	Pennsylvania,	1857
George A. Kimball,	Haverhill,	Massachusetts,	1859
J. H. Lemmon,	Baltimore,	Maryland,	1856
Hiram Maguire,	Portsmouth,	Ohio,	1864
Hennell Stevens,	Columbia,	Texas,	1857
T. Gibson Tweed,	Lowell,	Massachusetts,	1865
Augustus Vogeler,	Baltimore,	Maryland,	1858
Neander M. Woods,	Indianapolis,	Indiana,	1866

LIST OF MEMBERS DROPPED FROM THE ROLL.

Bruce M. Brake,*	Cincinnati,	Ohio,	1865
William D. Broomhead,	East Somerville,	Massachusetts,	1865
Charles C. Callan,	Washington,	District of Columbia,	1867
William Pryor Creecy,	Vicksburg,	Mississippi,	1860
William W. Cunningham,	Middletown,	Maryland,	1863
Joseph H. Debolt,	Fulton,	Ohio,	1864
John I. Fellows,*	Brooklyn,	New York,	1865
William H. French,	Lowell,	Massachusetts,	1865
Henry Griffin,	Grand Haven,	Michigan,	1866
Samuel L. Hayden,	Cincinnati,	Ohio,	1864
T. C. Hughes,	Pottsville,	Pennsylvania,	1862
Noah Huckins,*	Jackson,	Michigan,	1866
Thomas L. Johnson,*	Cooperstown,	New York,	1867
W. Austin Joyce,	Chicago,	Illinois,	1867
George A. Kelley,	Alleghany,	Pennsylvania,	1864
Thomas Kinghorne,*	Brooklyn,	New York,	1860
Edward R. Knight,	Melrose,	Massachusetts,	1865
Daniel B. Miller,	Covington,	Ohio,	1864
R. Vinton Steele,	Pittsburg,	Pennsylvania,	1866
Henry J. Weber,*	New York	New York,	1863
Henry M. Wilder,*	San Francisco,	California,	1866

* Present residence unknown.

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